

**The Infrastructure of the Animation Industry in the East
of England between 2009 & 2011**

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What are the infrastructural support requirements of the animation industry in the East of England? A study of regional sub-sectoral representation within a national context

Abstract

This research investigates how the animation industry in the UK is defined. It proposes a new framework for data collection to quantify the extent of the sector, with particular focus on infrastructural requirements in the East of England.

This thesis is designed to develop a potential model based on robust and methodologically sound research, that can better quantify animation and related activities from a regional perspective. It is not intended that this thesis will offer a solution to the understanding, or support requirements of the animation industry at a local level. Through developing enhanced measurement and definition, the research has the potential to affect the way that UK animation as a whole is understood, valued and supported.

Based on detailed mixed method research and thorough analysis using the East of England as a case study, the thesis proposes recommendations for new approaches to data collection and classification. The application of a 'Grounded Theory' approach has been developed using defined procedures and sounder theories and structures for potential future policy development.

Previous studies of the creative industries recognised that Norwich and the East of England were identified as centres for excellence in Animation. This view was primarily based on assumptions rather than on mapping specific business and employment data. Inadequate subject analysis resulted in the development of unsubstantiated policies and therefore placing immediate limits on their effectiveness. By studying the East of England animation industry sector in detail, using primary research as well as government-recognised data, it was possible to develop new methods for collection and definition.

Through analysis of a cross section of the UK animation sector and applying original models at regional level, the research clarifies the landscape of the animation sector and proposes a new framework model to contribute to future policy development.

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General Introduction

This thesis has been developed over a period of time spanning from 2005 to 2015. The foundation of this research is based on literature reviewed in 2008, therefore the texts considered in the first chapter were those available at the time and have informed the evolution of the conceptual framework and key research questions used in the research design for the remainder of the thesis. The development of the methodology and the applied research was undertaken between 2009 and 2011. It has therefore been necessary to consider data only from this period. Recommendations are made within the final chapter, considering the outcomes from the study within the context of related contemporary developments up to and including salient literature from 2015.

The thesis is divided into six chapters; the first chapter offering the initial conceptual framework consisting of key aspects of enquiry based on this initial literature review. Within this section four sharper and more insightful questions about the topic are emergent. These questions are used as a structure through the remaining chapters and revisited within the conclusion and recommendations as a means of measuring the success of the outcomes of this research. All chapters contain an introduction and summary section bookending the main body of text, these are designed to provide ease of reference and navigation.

Within the first chapter key relevant literature published between 2001 and 2008 has been reviewed through a theoretical framework consisting of three areas: studies on the UK animation industry, relevant data collection models and regional (East of England) animation related studies. The literature within this chapter draws attention to historical studies of the sector, pinpointing key discrepancies in data available and highlighting potential methods of measurement. The crucial theories and issues have been drawn together in order to develop an initial conceptual framework. This process has originated four sharper and more insightful research questions in relation to the topic (an explanation of this following the identified aspects of enquiry can be found at the end of chapter one, p X). These provide a framework for the research design in relation to the remaining chapter content:

- How can the contemporary UK animation industry be defined?

- What is the framework for development- where is it located in terms of existing research methodologies?
- How can I create a model to better represent animation related activities at a local level?
- How can the value of animation be more clearly understood using the East of England as a test area, to provide enhanced and informed support for the Region's economy?

Chapter Two begins to address the first research question by exploring the theoretical, educational and industrial definition of animation and pinpointing exactly what this study is to look at. Key individuals from the identified areas were interviewed over a period of three months between February and April 2008. This primary research provides the foundation for this chapter framed within relevant theory and literature. It considers the technicalities of media convergence and the value of the discursive term 'animation'. The chapter seeks to contextualise the priority of enquiry for this study ultimately giving focus to those individuals that create the 'animation' part of a product, engage in the animation production processes and define their occupation as an animator whichever industry they work in.

The third chapter focuses on the methodology and research design (concentrating on the second research question whilst also beginning to consider the impact of this on the third). Within this chapter I consider a context for the framework for development and how to cultivate a better model for measuring animation activities at a local level. Further relevant texts are considered and applicable theories and models applied to an emergent methodology. In order to understand these contributing factors, the most appropriate method of analysis is considered to be the *Creative Trident* model (Cunningham and Higgs, 2008). Through the application of this model animation can be identified by occupation, therefore creating a taxonomy for workers. The trident allows for conceptualization of these occupations: those employed in the animation industries and those belonging to animation occupations employed elsewhere. This approach highlights key industrial areas where there is a high level of animation employment beyond the recognised animation industry. This Chapter proposes that the breadth of the animation sectors will be identified by the number of animators or animation related activities employed within them, considering location on a case-by-case basis. This process allows for the identification of significant industry sectors through animation activity whilst potentially highlighting important links and clusters. This chapter seeks to unpick the rationale, philosophical assumptions and associated theory that is the foundation from

which the data is sought and the notional reasoning behind the application of methods employed within the next stage.

Chapter Four details the process of analysis through application of the theoretical methodology, considering how the value of animation can be more clearly understood using the East of England as a comparative test area within the UK. Within this section, the third research question is answered fully through an iterative process of development, testing and application of an appropriate methodology for measuring animation activities at a local level. This chapter deals with the empirical process of actually developing a data collection framework for the animation sector within the creative economy in the East of England, testing varying levels of standard government data and application of comprehensive analysis methods over a period of three years (2009-2011). The chapter provides a review of this collaborative process (working with Trends Business Research using their own Trends Central Resource/ TCR data) including all stages documented in full within the accompanying appendices. The chapter proposes three forms of comparative data looking first at existing regional census findings from Creative Skillset, TCR data devised through the development of this chapter and finally a 'control' census conducted by the author of this thesis. Within this process key comparative industry sectors are identified as primary employers of animators and applied as indicators for analysis. All sources provide data for the defined period of investigation focusing on animation employment records from 2009 and determining varying levels of data required for analysis at regional and the defined sectoral level.

The penultimate chapter provides detailed outcome analysis on the research findings and results derived from the selected 2009 data. The information considered from the research findings are measured both at a UK and regional (East of England) level. This section considers comparative data from Creative Skillset census findings applied to the *Creative Trident* methodology in order to produce estimates of animators working within the animation sector and other associated sectors including computer games, visual effects and interactive media. The process is replicated using the TCR data findings classified for comparison with this relative data. Both processes demonstrate the similarities and discrepancies within the analysis of the available data particularly at regional level. Finally the limited 'control study' numbers are assessed and compared, providing focus on the East of England region at animation sector level. The findings are presented with impartial narrative

through visual charts, additional interactive maps and indicative data visualisations providing a foundation for discussion, analysis and recommendations within the concluding chapter.

The final chapter answers the last research question through a detailed evaluation of the findings from Chapter Five and resulting conclusions. The chapter contains two sections; the first reviews the 2009 snapshot of the animation sector through the Creative Skillset, TCR and 'control' data comparisons. The second section offers eight final recommendations for actions with focus to three identified topics:

- Methodological processes- measurement and analysis of the animation industry in order to understand its presence at regional level
- Data collection- main Government recognised sources of data, classification and granularity
- Animation sectoral issues- historical and contemporary influences (up to and including December 2015) on the health and development of the defined sector

The chapter appraises these outcomes in the context of the research experience, based on data and emergent literature from the period examined. Methodological issues are summarised and limitations acknowledged in the development of a conclusion. A final summary provides a consolidation of findings and suggestions for future research.

Background

The initial impetus for this research was a piece of text written by Shiona Llewellyn and Sue Walker in the Creative Skillset Career Handbook for TV, Radio, Film, Video and Interactive Media (2003). The book suggests that although it is packed with information it could potentially be a springboard for further research in each of the subsectors it details. This emphasis assumes the reader to be someone at the start of their (respective) career requiring to look beyond the book into what is available around them in terms of jobs, funding, finance as well as local, national and international industry. Having been given this book at the start of my career as an animation practitioner and subsequently as an educator based in Norwich, I began to look around, to review and develop research on what was actually out there and available to me and to others entering or employed in the animation industry. I questioned what the state of the local and national industry was, what was written about it and how the industry was defined and acknowledged, and eventually what information the policy makers were using in order to support the animation industry. I found that, according to many local government reports and organisations, the animation industry was perceived as strong in Norwich and the East of England. But upon further investigation I found that many of the quotes and literature referenced were based on out of date data and limited interviews. It appeared that this material had filtered right through the system to national organisations and Government. Contrariwise, the 2006 Creative Skillset Employment data for the animation sector in the East of England indicated a lack of employment within this area. The book by Llewellyn and Walker suggested that the animation sector was made up of several sub-sectoral animation clusters outside of London in Bristol, Manchester, Cardiff, Edinburgh and Glasgow. I was tasked with examining the local animation industry as Animation Research and Development Officer at Norwich University of the Arts (NSAD at the time), and later I was writing position papers on the subsector as Film and Digital Media Exchange Co-ordinator. I wanted to find out how, beyond anecdotal evidence and observation, these clusters were monitored, measured and supported. How did these areas become areas of growth in the animation sub-sector, and how was their output acknowledged if data could not always be collected effectively at regional level? Following through from that goal, I intended to investigate and analyse what made these clusters successful, and assess if any of the structures and models (either intentional or unintentional) could be developed and put into place in Norwich and the East

of England, an area already considered in theory to be a growth area for the animation industry.

Chapter 1

Literature Review

Introduction

This chapter will provide the background information from which the research design for this study has been developed, it will build on previously examined literature, further papers, theories, discussion with experts, empirical data and leading organisational work. As Philliber, Schwab, and Samsloss (1980) describe, research design is the “blueprint” for research, dealing with at least four problems: what questions to study, what data is relevant, what data to collect, and how to analyse the results. This process will be systematic and, as with the nature of grounded theory, it will be necessary to continually review and refine evidence using an incremental and comparative approach allowing a relevant application to emerge.

The literature has been collated from a combination of previous research work within my roles as Animation Research and Development Officer, Film and Digital Media Exchange (FDMX) Co-ordinator, Animation Lecturer and Course Leader at Norwich University of the Arts. The literature has been selected to form a unique perspective considering the relationship between practitioner, educator and statistician. In developing enhanced knowledge of this subject area I have built on a broad range of networks through the local regional economy, animation sectorial and creative media practitioners as well as Government organisations. I have developed a competent understanding of economic geography and created working relationships with key professionals in this area. I have sought to combine the information gathered from a career devoted to the animation sector with an enhanced understanding of economic measurement.

Many studies of the creative industries identify Norwich and the East of England as centres for excellence in Animation. However, this assessment has been based on assumptions rather than on research that maps specific business and employment data. Many reports and analysis have found it difficult to categorise animation because of the increasingly blurred sector-specific lines and therefore, to date, an accurate study of the region’s infrastructure regarding animation does not exist. The Animation industry is a rapidly

changing and evolving sector and it is intended that the balance of this research will reflect this. Studies, both regionally and nationally, have been conducted within or relating to the sector of audiovisual industries by Creative Skillset, (the sector skills council for the audiovisual industry, hereafter known as Creative Skillset) under which the sector of animation falls, through regional development agencies, local Government and screen agencies. The difficulties present in defining the term 'animation' will be addressed in Chapter Two and are initially contextualized within this section in relation to former studies, taking into consideration its relationship to other relevant audio-visual discipline classifications. It is intended that this research will collate the most relevant and up to date research within a broad context relating to animation and to the region's infrastructure. The key issue will be the assessment of a common framework for collected or published data in regional creative reports.

An overview will initially be presented to establish the situation for the sub sector of animation so that it can be accurately contextualised and weighted in its position within the creative industries in the East of England, as they exist and are perceived to exist locally and nationally. New policy appears to be formed and developed through a broad definition of the 'creative' industries and therefore filters through to both a regional and sub-sectoral aggregation. Whilst this may be well intentioned it is often difficult to treat all areas with this methodology.

Chapter One is divided into three sections each of which has a summary of key issues at the end:

A general overview of **key texts** describing the UK animation sub sector's size, definition, structure and development: this includes twenty of the most relevant reports published between 2001 and 2008.

Animation is predominantly classified as a sub sector of the audiovisual industries within the creative industries. Relevant **data collection** evidence aids the identification of the potential gap in knowledge, situating and contextualising the research problem.

Relevant reports and findings for the **region of study** (the East of England), are highlighted and evaluated. Recommendations, themes and issues are identified for further exploration in the thesis.

The resulting development of the Conceptual Framework and Research Questions is summarised at the end of Chapter One.

Section One

UK Animation Industry Studies

2001: An Animation Odyssey

This study, by Steve McMellon of Baker Tilly, was conducted in 2001 and builds on previous media reports by the company aimed at the UK industry. It later had some degree of influence reference in the PACT report on the UK Animation Production Sector *Mouse or Superhero* (April 2002). The document seeks to focus on the UK animation industry whilst not ignoring the relevance of the international market. The study proposes to give an overview of the sector as well as identify problems and solutions affecting the animation sector in the UK. Much of the study is based on desk research, calling upon existing studies for data, with interviews and quotes from members of the industry to back up this evidence.

The report gives an overview of the industry including the main types of animation definition by Norman Kauffman (TVC), identifying the main types of animation by their applications. These are recognised as follows:

- *Cell animation*
- *Model and stop frame animation*
- *Computer assisted animation*
- *Computer animation* (McMellon, 2001, p.6)

McMellon identifies computer based animation as a growing sector and refers to the Roncarelli report; *The computer animation industry*, (1998) and the Creative Skillset report on *The Animation Industry employment patterns and training needs 1997/1998* for sector size, analysis of company production and geographic distribution. After defining the industry situation, McMellon establishes the problems facing the UK industry which include:

- *Distribution*
- *US domination*
- *Staff retention*
- *Training* (McMellon, 2001, p.12)

McMellon cites Clem Chambers (On-Line plc) at the PACT conference in 2000, when talking about UK animators as content providers who have to tap into broadcasters who ultimately control distribution; noting that new technologies will replace this traditional value chain:

'Shortly the means of distribution will be in everybody's hands and everybody will be clamouring for content.' (McMellon, 2001, p.12)

No further speculation is made about animation distribution in the UK, apart from a very brief mention of a lack of funding. A large portion of the report is then devoted to the volatility of the Film and TV markets in the UK due to other foreign content providers - principally the US. The report explores other European countries' measures through quotas and subsidies which have been implemented to stabilise the market in their respective countries, particularly the notion of a co-production agreement and tax subsidy for production. This issue has a further 'knock-on' effect leading to the problem of retention of staff, with many studios and production companies facing uncertainty from contract to contract so that many companies find it difficult:

'To strike a balance between keeping their animators occupied with interesting projects and balancing the books with other more lucrative kinds of work.' (McMellon, 2001, p.16)

It is also noted that this contributes to the migration of skilled workers to other productions and so when it is time to re-staff they must find new talent, which may be difficult, and staff shortages can result.

Finally, the issue of training is explored through the cohesive structure of Scotland's animation industry. Some local companies are involving themselves in Higher Education development through the expansion of networks and facilities in computer games and digital animation at Abertay and Dundee, as a result of a diminishing skilled workforce and support from The Regional Business Development Agency. However, it is noted that most animation companies are too small to take on enough trainees and that this situation is deteriorating.

Possible resolutions resulting from the report include the diversification of the sector into web content, mobile content, and advertising, as well as post production with the help of new technologies. New distribution methods also enable closer ties with the US film industry. McMellon acknowledges that competition in all genres of TV is fierce and that it is likely to increase even with alliances and co-productions. Other threats include the development of the animation industries in other countries, not just the US but also India, Hong Kong, France and Japan where, whilst content and ideas are not so successful, production costs are low and trends in out-sourcing are increasing. He identifies that these

countries are also creating unique and culturally styled content as well as creating co-productions with other government- supported and better funded countries.

The study has a resounding theme that new technologies are the way forward and that these will shape the animation industry in the UK and if harnessed correctly, give us the ability to reshape the industry in order to adapt and survive in a successful manner in the face of increased competition and a lack of funding from the more traditional ranks. Further, McMellon argues that focus must be given by the producers to increase revenue streams such as through intellectual property and co-production ventures. The report finishes by highlighting the funding streams available to UK animation companies who are seeking to get a project into production and distribution.

The report signals the inconsistent support and investment provided by Government and industry bodies and cites this as a continuing problem that will be detrimental to the industry in the face of increased competition from other countries beyond the US who have better support systems. It concludes by recommending that a system of financial reliefs in Ireland, referred to by the report as the Irish 'model' for film investment also backed by PACT, is increasing investment in the industry.

2001: An Animation Odyssey is an overview of the UK animation industry in qualitative terms. The report gives some good historical background information to many issues that were emerging at the time of writing (2008). However, the small amount of quantitative survey data from secondary sources is out of date and the small number of interviewees may have biased some of the findings and conclusions. It is now some seven years since this report was researched and written. It therefore comes with significant caveats with regard to the accuracy of the information provided and the conclusions it reaches.

PACT Issues Report: Animation November 2001

Out In the Cold

This short report was aimed at highlighting and consolidating various issues outlined in previous recommendations by Producers Alliance for Cinema and Television (PACT), Baker Tilly (*2001: An Animation Odyssey*) and the Creative Skillset/ Department for Culture, Media and Sport (DCMS) report; *Skills for Tomorrow's Media* (September 2001) which further fed

into the development of the *Creative Skillset Sector Skills Agreement* (for Film, TV and Interactive Media, 2005). PACT's report, *Out in the Cold*, additionally brought to the fore the issue of training and education within the animation industry.

Out In The Cold contains substantial evidence in the form of interviews and case studies from a breadth of UK locations including successful and lesser-known areas. The report uses mainly qualitative evidence with some small secondary quantitative data embedded within the information in order to support its findings. The report makes similar observations to those noted by Baker Tilly, further remarking that; 'Key to many of the problems now facing UK animation production is a lack of understanding of the industry' (PACT, 2001, p.2). PACT have found it difficult to pinpoint and understand its animation members, identifying that the areas of production and finance are very different constituencies of the sector requiring their support. At the root of the issue, PACT reiterates the two main causes:

- Loss of Production to less costly territories or those with greater funding support from their governments.
- Loss of rights ownership and revenue from sustained sales because many productions have to sell large amounts of their rights to foreign partners in order to gain funding to put their idea into production.

The report also shifts focus to the regions outside London and the better-known animation clusters, noting, 'If life is tough for animators in the UK generally, it's harder outside the key centres of London, Bristol and Manchester,' (PACT, 2001, p.2). Alex McSherry (Magic Stone Productions) makes clear how important business skills are for animators in order for them to deal with financiers, banks and solicitors to get the best deal for their ideas. The report notes that many graduates firstly do not have any business skills in order to recognise rights and terms of sale, to deal with broadcasters, funders or distributors or understand the need to consider sustainability when starting out in business. Further to those fundamental issues, Pat Green (The Brothers Dimm, Scotland) highlights the loss of talent through migration to the commercially dynamic regions of the UK and that given the current climate in production and the lack of business skills, the UK may suffer from a massive loss of graduate talent should the current situation continue: '...And more importantly the loss of creative properties that could provide longer-term income and development finance to reinvest locally.' (PACT, 2001, p.3)

McSherry continues by expressing the importance of smaller regional animation companies forming alliances in order to compete with larger companies from further afield as well as to negotiate credible deals for export and form a critical mass in terms of local infrastructure.

Whilst the validity of the evidence is questionable, the outputs of this report concur with previous industry findings. Therefore it does give some valuable advice in the formation of educational training that formalises what was written in the Skills for Tomorrow's Media report (Sept, 2001, p 177-180) and later used within the PACT Draft Animation Training Strategy (Dec 2001).

Mouse or Superhero

The UK Animation Production Sector

PACT April 2002

This report was written and researched by Marie Beardmore on behalf of PACT as a response to the increasing downturn and production issues in the UK animation market. The many attempts to highlight the UK animation industry's plight had led to PACT's realisation that there was a need for hard evidence to support the case put forward. Previous evidence had resulted in the DCMS conceding that animation was a "special case" (DCMS, 1999, Para 7.3) but it was felt because little action had taken place with regard to this acknowledgment further 'hard' evidence was required.

The report quickly outlines what it defines as animation:

Animation is characterised by a lack of live action – it is created by recording still images, which are then combined in sequence so that the difference between each image creates an impression of movement. That means classic two-dimensional animation as well as three-dimensional computer generated images (CGI) and model animation. (PACT, 2002, p.7)

It also outlines where animation might be found but notes that the report is focussed toward animation created for television or feature film. There is an underlying recognition that the animation industry has undertaken a huge global growth, however it notes there is little quantitative data to back this up besides the Roncarelli Report: *The Computer Animation Industry*, 1998 and various studies conducted by Screen Digest which do not give

a full industry view. The PACT report notes that areas of growth for the global industry include:

Children's televisual output because of long shelf lives and transferability

Adult animation

Feature Films and incomes from video and DVD sales

Computer technology for special effects and post production are saving time and money

Distribution through the internet

Merchandising on the back of successful animations

Commercial uses for animation in advertising

Games

It is acknowledged that the UK excels in stop-frame and pre-school animation. This is attributed to a strong tradition of good creative and technical skills and a thriving children's book publishing industry. During the 1980s the UK was a market leader in animation although at the time of writing the above report (April 2002), it is understood that it was suffering from competition from countries such as Canada and France causing UK production to stagnate. This situation arose principally because the UK industry was not receiving the same government support in the form of tax breaks and funding that many of its competitors had, therefore making it impossible to produce animation at a similar cost. Another major issue highlighted was the lack of support from broadcasters in the UK; much animation being acquired from abroad rather than originating in the UK. Noting that many broadcasters offered very poor financial support, as illustrated through this overview at the BBC:

Typically the BBC offers a licence fee entitling it to a seven-year window to show a production for no more than 8% of the production budget. This means the producer has to find over 90% of production finance by selling equity in the programme rights, or through pre-sales of programmes to broadcasters in other territories. (PACT, 2002, p.23)

For a contribution of 8% of the production budget the BBC requires a seven year window to screen the animation on BBC channels. This is one of the most extreme deals available to animation companies through terrestrial broadcasters. Ironically the BBC is also one of the largest consumers of this type of work. Other broadcaster deals, including ITV's licence for animation that is between 18-28%, are marginally better but still require the studio to find large sums of money to put the animation into production. This may mean that sizeable

proportions of the rights and Intellectual Property need to be sold off in an effort to raise funds. It can also result in UK companies entering into co-productions with other countries where, due to the percentage of funding and terms of contract the animation is then made in another country, taking the work away from the UK where the idea and commission had originated. This is a process that can extend over several years reducing the commercial interest and diminishing the patience of investors as noted in some case studies within the report.

All of these issues result in UK animation studios struggling to build credible businesses and expand in the market when they face cash flow difficulties due to the high development and production costs that have to be absorbed by the producers until output is completed. Most studios are characteristically small, placing restrictions on resources that could otherwise be utilised in developing revenue streams such as advertisements. Due to greater activity and affluence in associated creative sectors there has been a net migration of animation skills to areas such as games design.

In response to these issues the paper proposes that Creative Skillset establish an Animation Forum as a guide to developing support for the skills of new entrants to the animation workforce and recognise animation as a priority for investment in the forthcoming year (2003). Further to this, PACT's Animation Policy group agreed there needs to be greater support from broadcasters and an increase in their licence fee for buying into animation productions, in line with the lead taken by S4C and its policy for supporting indigenous production in Wales. The group also intends to lobby for increased Government support in recognising that the UK cannot compete with other countries on its existing tax situation and with no other grants or support aimed at making the UK industry more internationally competitive. It highlights a previous proposition by the *Creative Industries: UK Television Exports Inquiry* (November 1999), of a rights fund set up possibly with National Lottery capital suggesting that the Government could offer producers 20% of the production costs in exchange for 30% of the value of the rights. It notes the Irish Model previously outlined in McMellon's report, stating that a tax incentive would help production begin more rapidly and be based in the UK.

In summary, the 2002 report recommends that the animation industry in the UK needs a focussed strategy involving the participation of animation industries and Government

responsible for policy working together to help the UK animation industry regain its competitiveness and compete more effectively in the world market.

The report does not identify any of its interview sources, mainly due to confidentiality and therefore limits the contextualisation of its outputs. Furthermore the report has a greater focus on children's animation production and most data is qualitative embedded within secondary source quantitative data. The report concludes with a valuable appendix titled '*Support for Animation in Overseas Territories*' that outlines and models what could act as useful templates for UK industry observation. No sources or bibliography are attached to them.

The likely Costs and Benefits of a UK Animation Fund

A Report by Optima

3rd February 2004

This report was created for PACT in order to support a bid for an animation rights fund from UK Government. The purpose of the report was to outline proposals for public funding required for the scheme, how it would work in relation to the problems faced by the UK animation industry, time span and probable outcomes. The report aimed to highlight the seriousness of the situation with regard to 'Made for TV animation' and the potential impact on employment and revenue lost from the decline of the animation industry in the UK. The Optima report appears to build on the highly anecdotal evidence and findings noted PACT's April 2002 report on the animation industry in the UK, *Mouse or Super Hero*.

Beyond developing the current issues and plan for support, Optima (a joint venture between Oliver and Ohlbaum Associates Limited and David Graham Associates Ltd) were asked by PACT to create a potential model for the fund and consider how it might be operated.

The report gives valid reasons for the decline of the animation industry in the UK backed up with statistical data supplied by David Graham Associates. The statistics state that globally the broadcast of animation has increased by 520 hours over a 10 year period (1994-2003). In comparison with 152 hours increase in Canadian output, the UK has only increased by 98

hours with just 20% of network transmission output in 2003 being UK produced animation. The report further comments that, according to a separate survey, as little as 14% of the animation shown on six commercial children's channels has been produced by UK based companies. The report notes that the UK produces 50 hours of new and recommissioned animation each year, compared with 270 hours in France, 120 in Spain and 75 in Germany.

This data clearly signals that the animation industry in the UK is falling behind many of its competitors due to advantageous public funds, tax breaks and subsidies. This coupled with competition from industrial giants such as the US and cheaper labour supply from lower costing production sources in the Far East and the UK's own broadcast industry's lack of financial support could potentially lead to a total collapse of the already troubled animation industry in the UK. This situation may also have implications for the wider UK Creative Industries:

Animation's weakness not only means the UK is missing out on a high growth global sector where its historic creative record is very strong, but also that the pool of highly skilled animation resources in the UK - used by the TV, feature film and growingly important interactive TV and video games sectors - is seriously depleted. Weakness in animation is likely to undermine the UK's position in a broad range of increasingly important creative industries and impact the UK's overall creative industries' trade balance. (Optima, 2004, p.5/6)

The proposed fund would only be available to independent productions, preferably for a non pre-school audience. From the interviews included and the budgetary information supplied to Optima it was deduced that approximately 6 per cent profit is an optimistic financial return for a new animation, sometimes when overheads and other development costs are paid the project may struggle to break even. Long running hits and recommissions are low because of outside, cheaper competition from other countries. Optima sets the fund's aims to create the following:

...repatriate the financial returns and creative control of, and input to, current co-produced animation projects involving UK animation companies, back to the UK; expand the number of UK animations being made and commissioned by UK broadcasters; and, develop a robust financial and skills base for the UK animation sector as a basis for future commercial - non subsidized - expansion. Overall, the fund should aim to achieve these impacts at minimal cost to the tax payer. (Optima, 2004, p.10)

The intention of the fund would be to invest between 25% - 30% of the overall production budget, that added to the broadcaster licence of between 8% (BBC) and 28% (ITV) would give the producer more control and weight when it came to seeking further investment, also meaning that they would hang onto more rights, potential production and intellectual property (IP). The Fund would aim to target around ten projects a year from approximately thirty applications, in order to secure new rights and repatriate project production being carried out in other subsidised countries. In terms of types of animation the fund would seek to encourage projects with higher commercial returns from video and DVD sales and merchandising. Further to that:

The fund might also have a general obligation to encourage animation projects from across the UK, and might also demand that companies seeking funding for individual programmes show a strong previous track record, and demonstrate the financial capacity to take on the commercial risks in the co-funded project. (Optima, 2004, p.12)

This signals encouragement of work from new regions and possible collaborative development. The report considers that at a recoup of 10% plus original funds would mean that after a 10 - 15 year period the fund should become self sustaining and encourage around fifty extra hours of UK originated animated programming.

Very little information on the methods and methodology used in this report is given, especially with regard to statistical samples and where data was gathered from besides that were the source was DGA (David Graham Associates Ltd). It is remarked upon how little data is actually available on the global and UK animation market, this lack of data is further exacerbated by 'lack of clear definitions of the sector'(p 6) and the union of technology with other digital subsectors therefore flattening and absorbing data that may be of use. Creative Skillset census results from 1998 and the 2001: Animation Odyssey report (using results from the Roncarelli Report: *The Computer Animation Industry*, 1998) were the main sources of backup statistical data and qualitative evidence. Further to this, six named UK animation companies were interviewed regarding the structure of the fund, information on budgets and cash flows for typical projects.

Considering the location of the six production studios, one is based in Scotland (Edinburgh), one in Wales (Cardiff), and four in England (Bristol and three in London). It is assumed that the balance of activities fell across the different animation disciplines and genres although

no information on the reason for choice of this sample is given besides the deduction that they were members of PACT's animation group at the time that this report was created.

Creative Skillset Sector Skills Agreement England

Film, TV and Interactive Media (2005)

The Creative Skillset Sector Skills Agreement (SSA) for England is a demand-driven action plan for skills development in film, TV and Interactive Media. The report contains a diverse mix of primary and secondary research giving an extremely full picture of the three sectors and research on employment, occupation, ethnicity, diversity, regional make-up and composition. The SSA notes that it plans to be delivered in partnership with Government, further and higher education as well as local and national strategic organisations. The aim of the report is to draw attention to the type, size and shape of industry, operating under the three aforementioned sectors as well as skills development required within these industries. This report is part of a family including regional sector strategies and singular sector focused documents, mentioning that there will be further sectorial analysis documents beyond Film, TV and Interactive Media summarised in this report in line with Creative Skillset's sub-sectoral coverage.

There is no specific section on Animation, however it is mentioned several times throughout the report as a cross industry sector, supplying content for all three sectors of Film, TV and Interactive Media. Based on Creative Skillset Census (2004) data the animation industry is primarily made up of small to medium sized enterprises (SMEs). On analysis of the television subsector, the report finds that out of a workforce of approx 76,000 people, '2,400 are employed in animation of which 45% are freelance and a few hundred are employed in distribution as employees.' (Creative Skillset, 2005, p. 22) subsequently making up around 3% of the total television workforce. It also finds that the majority of freelancers were employed by independent television production companies, with a heavy reliance on freelance employment (59%) in total. Particular areas of the television industry were found to have a very strong bias towards London including animation, although it is also conceded that there are other prominent clusters. No numerical data is provided to support this. In general, the report finds that most companies outside London tend to work across a more diverse mix of media employment for television and are less specialised.

Within the interactive media industries, including cross-cutting themes of web and internet, interactive television, off-line multimedia, electronic games and computer animation, animation accounts for around 3% of web and internet occupations. It did not register for either off-line multimedia or electronic games, however as this was self-selective candidates in the census may have positioned themselves under another occupational heading such as production, content, creative or other.

When considering the regional specialisms animation is again highlighted as a strength for the South West and Bristol in particular as well as Manchester in the North West.

The report gives a rich overview of the larger audio-visual sector and within that contextualises animation. Beyond the findings relating to animation noted (2005), the report gives little more detail making it difficult to determine specific issues relating only to animation as a subsectoral entity.

New Entrants Training in the UK Animation Industry, Creative Skillset (April, 2004)

This research was produced by the Learning and Skills Council (LSC) for Creative Skillset and the Animation forum, published in April 2004. The purpose of the report was to determine the best means of addressing the perceived need for new entrants' training in animation. This resulted in a suggested model for a New Entrants' Training Scheme with long and short-term goals for all sectors of the animation industry.

The project consisted of a thorough methodology of gathered evidence consisting of mainly quantitative information from existing Creative Skillset sources and the Skills Intelligence Network, as well as a national survey of animation companies from February to March 2004. The final model was presented to the Creative Skillset Animation Forum Panel in March 2004.

Of the 300 companies contacted within the process of the survey, there was a 15% response rate, with the majority of responses (60%) being from small companies with fewer than ten employees. The primary business activity of respondents (77%) was TV series or specials, commercials (38%), VFX (23%) and games (16%); it is noted that this may have influenced the nature of the responses. Many companies were also identified as having more than one area of business beyond their primary activity cited. Digital techniques in

both 2D (58%) and 3D (63%) were the most prevalent areas of production, with 2D drawn (44%) followed by stop-frame (21%) in the lower percentages.

There are several issues associated with the state of the industry and opportunities available, including a shift in the focus of production and areas of specialism in the UK industry meaning that some established animators will need to retrain. It is expressed that existing avenues of funding need to be clearer and more widely publicised along with better general information distribution on training opportunities available.

In summary, the report finds that a Creative Skillset Accreditation scheme would be a long-term potential solution to the skills issues. Through the Accreditation scheme, HEIs will be encouraged to develop more industry appropriate curricula giving graduates an improved understanding of industry characteristics and employment opportunities as well as equipping students with the skills desired by the industry. In the short-term, new entrants who have already graduated will need support to get their skills up to speed, this may mean enhancing companies' current training provision whilst also offering more short courses as well as highlighting the existing provision and funding available to attend these courses. The report identifies priority occupations for support and also suggests that more industry placement programmes are devised in particular relation to these occupations with generous funding benefits to companies that can offer such placements.

This research gives a comprehensive overview of the skills issues facing the industry and suggests some innovative examples of training and potential as well as the then accessible sources of funding in order to achieve its goals. It highlights some of the issues facing the industry but doesn't consider them as far as possible in terms of their reflection on the shape of education and training provision. Further to this, because the sample size was 15% of a wide and varied sector it may also mean that the findings were unevenly weighted to one particular group or subsector in terms of the qualitative data collected.

Summary of Key Issues (Section One)

• Inconsistent Definitions

Over-arching themes within the above reports demonstrate an inconsistent definition of the animation sector. Some outline the main types of animation and applications (Baker Tilly), whilst others acknowledge a more fluid definition and highlight growth areas (PACT, April 2002) or areas in decline such as 'Made for TV animation' (Optima, 3rd February 2004). Creative Skillset contextualises animation in relation to the larger audiovisual sector but never actually defines animation as a sector beyond occupational categories.

• Limited Sources of Data

A major issue is that each report was written with differing terms of reference drawing on varying and scarce sources of quantitative and qualitative data to back up their findings. Furthermore, the animation industry is continually diversifying as technologies develop and the more traditional industries find it harder to survive given the economic constraints within the UK. These findings reinforce the lack of a clear industrial definition to focus data collection in relation to the field of animation. This in turn makes any comparison of data or information from varying organisations relating to the industry incomparable because of a lack of consistent parameters.

• Lack of Competitiveness

Core issues emerging from the literature for the animation industry point to a lack of UK competitiveness within the global market. This can be attributed to:

- US dominance in the marketplace
- Cheaper labour costs in overseas markets – India & China
- Government subsidisation – France & Canada

Within the UK there is evidence of strength in the development of ideas but many of the reports point to a loss of the long-term revenue that these ideas should generate. This is due to the procurement models employed by the main commissioners of animation, the BBC and ITV, although from 2006, ITV made a decision not to commission any children's content.

There is evidence that generating the necessary finances to develop and create a production for traditional TV animation is extremely difficult within the UK. The resulting impact in the UK, due to low licence fees, causes companies to seek funding from elsewhere, usually in the form of co-productions with other countries, in return for large proportions of the rights. The production is then usually completed abroad also leading to less employment within the content production aspect of the animation industry in the UK. With there being less employment in areas many animation employees were trained to work in, it is found that some talent is being lost to other countries where the animation industry is growing, or UK talent is moving into other related areas such as computer games design.

- **Education and Training**

In terms of education (from the data and key literature available) there is a lack of top-up training as companies are very small, internships and work placements are reduced because of the size of companies and resources available. There is a need for new entrants to have an understanding of the animation industry in order to make informed career decisions. Further to this in terms of education, improved business understanding for smaller companies, especially in developing deals or alliances in order to sustain their industry, is a growing necessity.

- **Variable Support**

The main concern pinpointed through the core issues highlighted is the lack of, or inconsistent, support for the animation industry from both government and broadcasters in the UK. It is acknowledged that, 'Business, rather than governments, create jobs' (DCMS, 2008, p.39) but Government statistics are the most prominent driving force for action and policy development in this area. Affiliated organisations are trying to highlight several key problems in terms of competitiveness but the animation industry remains low in priority because it is not fully understood or identified to its full potential. *The DCMS Creative Economy report: New Talents for the New Economy* (22nd Feb 2008) further alludes to the Government beginning to see the sector as a growth area by its reference to 'a world-class centre of excellence Finishing School for Animation in Education, in partnership with Aardman Animations, Creative Skillset and the South West Regional Development Agency' (DCMS, 2008, p26) and links to important festivals such as Animex, the International

Festival of Animation and Computer Games in Middlesborough (DCMS, p11, 2008). As noted within the DCMS report a key issue will be keeping the strategy up-to-date. In order that the sector needs can be truly understood, an accurate picture must be formed. This requires a solid understanding of the sector, a flexible framework for data collection and shared industry intelligence:

No single model will meet the needs of all those involved in the creative industries and those with whom they want to work. However, we encourage employers or other interested stakeholders to develop further ideas. (DCMS, p26, 2008)

Section Two

Approaches to Animation and Related Data Collection

This section explores key studies and frameworks for data collection relative to animation. It is necessary to provide an overview of the situation as all classification of creative industries are linked by supply chains and sectors and sub sectors. It will provide the reader with an overview of the hierarchy (from national to regional) and scope of the current related research situation, and data collection approaches that determine the size and character of the animation industry.

As a result, brief examinations of specific studies and definitions in a broader context need to be considered, as these impact on how animation is defined and the type of data that is gathered in terms of official statistics. The process and strategies for data collection in relation to the audiovisual industries, and in particular animation, are complex and multifaceted.

Department for Culture, Media and Sport (DCMS)

DCMS Evidence Toolkit- DET (2008)

Within the UK the DCMS defines the 'Creative Industries' and categorises them into the following list:

- Advertising
- Architecture
- Art and Antiques Market
- Crafts
- Design
- Designer Fashion
- Film and Video
- Interactive Leisure Software
- Music
- Performing Arts
- Publishing

Software and Computer Services

Television and Radio

These were formalised in 2008, when the DCMS adopted a new group of standard definitions for the cultural sector in order to measure performance. The new classifications were created in response to the English Regional Cultural Consortia (RCC's) need for a more vigorous and reliable evidence based framework for collection of data in order to develop new policies for culture.

Issues and problems such as those cited below were found to be rife throughout key data collections by organisations including DCMS and so it was clear that a more up-to-date methodology needed to be found in order to combat these particular issues pinpointed:

***Intrinsic.** The complex, fragmented and fluid nature of this sector make them (SIC) difficult to measure using conventional statistical sources and techniques.*

***Managerial.** Largely because of the above, there has been a lack of knowledge and expertise in drawing together credible data for use in policy-making.*

(DCMS, 2004, P. 1)

These points and other separate issues have led to the development of the DCMS Evidence Toolkit (DET), formally the Regional Culture Data Framework (RCDF), which intends to allow for greater co-ordination of regional data throughout the UK in accordance with other related organisations.

Major areas of change include the use of the concept of functions within a culture cycle/production chain as the underlying logic that guides the development of a statistical framework for the sector. The definitions are also consistent with parallel classification criteria used internationally, as well as more strongly related to those used by sector skills councils for each sector. The DCMS Leadership Group (LEG) created seven new sectors in 2007, which are labelled cultural 'domains', these are:

- Heritage (includes museums, libraries, archives and historic environment)
- Books and Press
- Visual Arts (includes galleries, architecture, design and crafts)
- Sport

- Tourism (includes gambling and betting activities)
- Performance (includes theatre, arts and dance)
- Audio-Visual (includes film, TV, radio, new media and music)

(October

2007,

www.culture.gov.uk/Reference_library/Research/det/glossary_abbreviations.htm)

In separating the Arts from the Creative Industries it must be noted that the DCMS spread these activities across a range of domains:

Creative Industries = Visual Arts + Performance + Audio-Visual + Books and Press
The creative industries also includes Computer Services (72.21-Software publishing and 72.22*-Other software consultancy and supply)
(DCMS, 2004, p.33) * Numbering relates to Standard Industrial Classification (SIC) codes

Each of the domains is classified or mapped against a matrix of 'depth' or functions within the supply chain; this is called 'The Cultural Cycle':

Creation

Production

Dissemination

Trade/sales

Education

Preservation

'The Cultural Cycle' acts as a template for measuring various categories in the supply chain for each of the domains or sectors, comprised of a number of domains. The table gives guidance on the types of data that could be used when analysing a domain under each of the six functions or activities. Much of this data is not available although the DCMS identifies that these are the areas they hope to achieve data collection methods for in the future.

For more information on sources of data that feed this cycle see appendix 1.1.

The Audio-Visual domain

Animation is classified by the government as an audiovisual activity and so therefore falls under the audiovisual domain with the DCMS DET and beyond that in terms of data

collection with Creative Skillset. In the original DET (2004) the DCMS Leadership Group (LEG) definition treated Multimedia/Interactive Media – principally leisure software, digital art and new media activities – as a stand-alone domain. However, it was argued that Interactive Media activities should appear within the Audiovisual cycle, given the strong (and increasing) organisational and culture cycle linkages between Interactive Media and other elements of the Audio-Visual domain.

Bringing Interactive Media together with other Audiovisual activities is also consistent with Creative Skillset's sectorial responsibilities. Therefore the new version includes Interactive Media, which encompasses leisure software, digital art and new media activities, that in turn have a close relationship with the area of animation.

The new DET captures the full production chain view of each domain of the creative industries. The audiovisual activities list includes the following selection of processes, all of which are considered to be of relevance to the area of animation:

Creation of cinematographic works and audio-visual (non-cinema) works

Creation of multimedia works

Production of films for the cinema

Production of films (non-cinema)

Production of television programmes

Production of commercials (TV and cinema)

Production of music, sound and audio-visual recordings

Production of multimedia works (inc. leisure software, digital arts and new media)

Services relating to the production of musical, broadcast and multimedia works (inc. agents, managers, promoters etc)

Media buying, planning and evaluation

Distribution of film

Distribution of multimedia works

Trade/sales in multimedia works

Education and training activities (Adapted from DCMS, 2004, p.14)

The DCMS states that it is necessary for some of the data set out in the cultural cycle table to be identified using SIC codes (Standard Industrial classifications) that fall in line with the

Office of National Statistics data (ONS- the government department responsible for collecting and publishing official and impartial statistics about the UK's society and economy). Data for which SIC codes have been defined or required are listed for the Audiovisual domain in appendix 1.2. The DCMS recommends that these codes are used although it also notes that they are not fully complete.

To critically evaluate Standard Industrial classifications (SIC codes) and Standard Occupational classifications (SOC codes), their use and origins must first be understood.

The Standard Occupational Classification (SOC) was first published in 1990 to replace both the Classification of Occupations 1980 (CO80) and the Classification of Occupations and Dictionary of Occupational Titles (CODOT). SOC 1990 has been revised and updated to produce SOC2000 and after this research SOC 2010

The two main concepts of the classification remain unchanged:

- Kind of work performed - job
- Competent performance of tasks and duties - skill.

Major influences on the nature and shape of these revisions were the innovations associated with technological developments and less directly, the re-definition of work reflecting the educational attainment of those entering the labour market.

The DCMS had previously commented that (the SOC) classification is of limited use and should be avoided except for in labour market studies and those mainly relating to skills. SOC (Sector Occupational Codes) have been found to track the actions of an individual rather than the relationship to sectors. Some occupations defined by SOC will not take place in more than one sector whereas others may cross into many sectors. There also may be occupations based in the cultural sector that have no cultural or creative relevance, such as accountancy. The DCMS further comment in the DET document that:

These (Occupations) can be identified by cross-referencing occupational codes with SIC codes for the business unit in which the occupation takes place. However, this analysis produces its own complications. In any case, it requires a level of sophistication and access to data at such a fundamental level that it is beyond the scope of all but a handful of data

specialists in the UK. This is the prime reason why using SIC codes as the foundation for the measurement of employment is preferable. (DCMS, 2004, p.35)

The DCMS has managed to apply the SOC codes using (at the time) the most up to date SOC (2000) classifications. This selection was very limited and did not contain the level of sophistication required to identify animation-related occupations:

AUDIO-VISUAL
1134 Advertising and public relations managers
1136 IT/Comms. Manager
2131 IT Professionals
3415 Musicians
3432 Broadcasting associate professionals
3433 Public relations officers
3434 Photographers and audio-visual equipment operators
5233 Line repairers and cable jointers
5244 TV and video engineers
5494 Musical instrument makers and tuners

1.1: DCMS DET list of applied SOC codes (DCMS, 2004, p.36)

The UK Standard Industrial Classification of Economic Activities is used to classify business by the type of economic activities they are engaged in. SIC codes were devised after the Second World War and based on set industries prior to classification of the ‘innovation’ economy and services are now defined as a product. SIC codes work by classifying industrial yield, which can sometimes be problematic due to the nature of the creative industries not wholly being based on a concrete output.

Owing to this demand for change the SIC codes have been challenged to match developments in industry and technology, many creative activities are still hidden within other classifications or others not accounted for. In 2008 the Inter-Departmental Business Register (IDBR) had also begun to develop five digit codes which allow for greater diversity in classifications which relate to Annual Business Inquiry data (ABI). These were implemented with the introduction of SIC2007. The following SIC code definitions for the 2004 DCMS Evidence toolkit are their suggested classifications for the industries included within the audiovisual domain, some of which relate to the area of animation:

Film

- 22.32 reproduction of video recording
- 22.11 motion picture and video production
- 92.12 motion picture and video distribution
- 92.13 motion picture projection
- Computer games, software, electronic publishing**
- 22.33 reproduction of computer media (+)
- 72.20 software consultancy and supply

Radio and TV

- 92.20 radio and television activities

1.2: DCMS Suggested Classifications for Audio Visual Domain Industries (DCMS, 2004, p.65/66)

Further mapping of SIC codes can be found in the DCMS Creative Industries Economic Estimates Bulletin. This provides additional comparisons of the creative industries overview in relation to the audiovisual industry classifications: (Note: these sectors are not easily divided up into the appropriate audiovisual domain for sub sectorial analysis to the level of animation)

1. Assumptions for correspondence between Creative Industries and SIC codes		
Mapping document chapter	Sector	Standard Industrial Classification (SIC)
1	Advertising	74.4 advertising
2	Architecture	74.2 architectural (+)*
3	Art/antiques trade	52.48/9 retail sale in specialised stores nec (+) 52.5 retail sale of second/hand goods in stores (+) <i>majority of businesses too small to be picked in business surveys no codes match this field</i>
4	Crafts	
5	Design	
6	Designer fashion	9 subsectors clothing manufacture (+) 74.84 other business activities nec (+)
7	Video, film, music & photography	22.32 reproduction of video recording (+) 92.11 motion picture and video production 92.12 motion picture and video distribution 92.13 motion picture projection 74.81 photographic activities (+)
9&10	Music and the visual and performing arts	22.14 publishing of sound recordings 22.31 reproduction of sound recording (+) 92.31 artistic & literary creation & interpretation 92.32 operation of arts facilities 92.34 other entertainment activities nec (+) 92.72 other recreational activities nec (+)
11	Publishing	22.11 publishing of books 22.12 publishing of newspapers 22.13 publishing of journals & periodicals 22.15 other publishing (+) 92.4 news agency activities
8 & 12	Software (incl leisure) & computer services	22.33 reproduction of computer media (+) 72.2 software consultancy & supply
13	Radio and TV	92.2 radio & television activities

+ denotes that only a proportion of this industry group is included to estimate the creative element. Details are available on request.
* Number of architecture business has been calculated using code 74.20/1 from the IDBR.

1.3: DCMS CIE assumptions for correspondence between Creative Industries and SIC codes (DCMS, August 2004, p.10)

SIC codes are often used by Sector Skills Councils as code groupings that most closely match their priorities:

These definitions are a 'best fit' of each SSCs core business sectors. These specify the core SIC codes that are undisputed and do not overlap with any other SSC. (Sector Skills Development Agency, 2004, p.ii)

Returning to the DET, in the short term it recommends that although there is acknowledgement of statistical deficiencies, better use could be made of the data available at both a national and a regional level, along with the following:

- Securing larger sample sizes
- Making changes to categories and classification systems
- Introducing culture-specific questions to broader surveys
- Developing shared methodologies for measuring social and economic impact. (DCMS, 2004, p.25)

The DET is predominantly a technical report and gives some strong guidance for government standard data collection and methodologies. It also serves as a benchmark for general data collection issues across the creative industries sector, having a knock on effect through the sectorial and sub-sectoral chain. In 2008, 4-digit SIC codes were still being used and it wasn't until late 2007 that the 5-digit versions were introduced. During this period DCMS used weightings or estimations that were not statistically rigorous enough to be used at regional levels. This highlighted the need for cross-cutting issue-based (national) frameworks to create common definitions, methodologies and data management arrangements and to encourage and complement uniformity in regional intelligence.

Data Collection Frameworks

The DCMS DET may be the most appropriate measure for sector and some subsector specific research and data collection however, issues with changing SIC definitions and descriptions mean that data sets will fluctuate over time from study to study. As can be seen in the table below the sector description for Creative Skillset (the sector skills council for the audiovisual industries) stays relatively similar but the SIC codes parameters for Creative Skillset vary:

Creative Skillset	Creative Skillset is the SSC for the audio-visual industries. The sector covers broadcast, film, video, interactive media and photo imaging.
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	<p>The SIC codes for Creative Skillset include SIC 21.12, 22.3, 24.64, 25.21, 33.4, 74.81, 92.1 and 92.2.</p> <p>It is also important to note that this definition does not include some industries that are core to other SSCs, such as interactive media. Furthermore, self-employed (freelancers) account for a large proportion of the workforce represented by Creative Skillset. In reworking the Working Futures results only 22.32 is included, 21.12, 25.21 and 33.4 were excluded.</p>
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SSC name	SSC description	SIC definition
Skills for Care and Development	Social care including children, families and young children	85.3
Skillset Web www.skillset.org	Broadcast, film, video, interactive media and photo imaging	22.32, 24.64, 74.81, 92.1, 92.2, 93.05

Photo-imaging is spread across a range of SIC codes, it is not possible to identify the retail element. Interactive media, the largest sector in scope to Skillset, is not exclusively coded and is included within the core of e-skills UK, therefore it is excluded from this analysis. Additionally, self-employed people without employees are not included in this survey but represent most of the sector in areas which are included such as film production and independent production. For these reasons combined, the data presented for Skillset should be interpreted with extreme caution.

1.4: Comparison of Creative Skillset descriptions and SIC definitions (LSC/NESS, July 2005, p.26.)

The office of national statistics (ONS) who issue the SIC and SOC codes classify the audiovisual industries, with specific reference to animation, as the following:

92.11/1 Motion picture production on film or video tape

This subclass includes:

-production of theatrical and non-theatrical motion pictures whether on film or on video tape for direct projection in theatres or for broadcasting on television:

-production in a motion picture studio, or in special laboratories for animated films or cartoons, of full-length films, documentaries, shorts, etc., for public entertainment, promotion, education or training.

This subclass excludes:

-film duplication as well as audio and video tape reproduction from master copies cf. 22.3.

-renting of articles and equipment (e.g. scenery, cameras) to the entertainment industries cf. 71.34

- film processing other than for the motion picture industry cf. 74.81/9*
- agency activities cf. 74.84/9*
- production of films or tapes normally produced in television studios cf. 92.20/2*
- activities of own account actors, cartoonists, directors, consultants and other technical specialists cf. 92.31*
- casting and booking agency activities cf. 92.72 (Thea Thomas (ONS), (14th March 2008))*

In 2008 this was the most up-to-date reference containing a new 5 digit definition to the industry class; however this still includes other sub-sectoral data which dilutes the specific information relevant to an overview of the animation sector.

It is advised by the Sector Skills Development Agency that specific Sector Skills Councils (SSCs) can provide further in-depth analysis of data and these should be approached when conducting studies of any detail into sub sectorial areas such as animation. Creative Skillset comment that the SIC and SOC codes are quite limiting for their sector and so they classify the sector and occupations using an industry approved system. The current classifications can be found in appendix 1.3 of this report.

In 2008 Creative Skillset still used the SIC/SOC system for photo-imaging, however they have been working with the Office of National Statistics (ONS) to improve the current classifications as these too are quite limiting. Creative Skillset subdivides the audiovisual industries into ten sectors:

- *animation*
- *commercials*
- *computer games*
- *corporate production*
- *facilities (which includes post production)*
- *film*
- *interactive media*
- *photo imaging*
- *radio*
- *television*

All sectors have their own unique skills and specialisms, and therefore their own unique requirements for skills and training, but there is now increasing movement of freelancers between related sectors, such as between high-

end television drama and film.

Creative Skillset works with each of these sectors separately, and in combination, to raise skill levels to meet the needs of the audiovisual industries as a whole. For each sector, Creative Skillset collects information on the size and make-up of the workforce, and develops standards that define the specific job areas and job roles involved.

([http://www.Creative Skillset.org/CreativeSkillset/role/article_2643_1.asp](http://www.CreativeSkillset.org/CreativeSkillset/role/article_2643_1.asp), March 2006)

Creative Skillset use their census to create an overall understanding of the size and shape of the audiovisual industry and the sub sectors (as defined) contained within that. Representation and responses vary from subsector to subsector and so it is necessary for Creative Skillset to back their data up with other studies. Regional employment figures are often cross referenced within the Annual Business Inquiry (ABI) and the Labour Force Survey (LFS). The ABI is conducted in two parts: employment and financial information, it is held by the Office of National Statistics (ONS).

The ABI along with the LFS (which also uses the SOC classifications to identify occupations) are both based on the SIC classification and so whilst being useful for the measurement of employees and employment there are some discrepancies in inclusion or exclusion of detailed sector-specific data within this methodology. The ABI enquiry also excludes all freelancers. Creative Skillset also gather employee data from the National Employers Skills Survey (NESS) conducted by the Learning and Skills Council (LSC) and based on SIC codes as well as the SOC classifications; this gives a greater overview of regional employment and occupations.

The 2004 NESS had for the first time been sampled by the sector skills councils, therefore trying to match as closely as possible the SIC classifications to the specific sector skills councils definitions (See above tables). Although this development is identified by Creative Skillset to be a positive transformation it does prove difficult to map and compare to previous findings due to the more general definitions of sectors. It is also difficult to map current sub sectorial definitions provided by the SSC, therefore making sample sizes often very small for extracting regional data.

Finally Creative Skillset also employ a Skills Intelligence Network (SIN), that gathers the thoughts of employers on important skills issues in their industries. The SIN covers all areas

of the audiovisual industries. The network also draws intelligence from all the nations and regions within the UK, utilizing Creative Skillset’s national and regional panels. In gathering data and research, Creative Skillset note that they will:

Work with other agencies to avoid duplication in research and to encourage agencies to use industry’s approved Labour Market Intelligence (LMI) research programmes. (Creative Skillset, 2004, p.36)

Creative Skillset Census

The Creative Skillset census for 2006 was completed on 12th July. The sectors covered varied slightly from previous years and included more defined categories to those used in earlier censuses, as can be seen below:

Response By Sector
Broadcast TV
Cable and Satellite Television
Independent Production (Television)
Broadcast Radio
Animation
Post Production
Digital Special Effects
Facilities (Studio/Equipment Hire)
Web and Internet
Electronic Games
Offline Multimedia
Commercials Production
Corporate Production
Cinema Exhibition
Film Distribution
Processing Laboratories
Other

1.5: Creative Skillset Sector coverage in 2004 (Creative Skillset, 2005, p.6)

TELEVISION
Terrestrial TV
Cable & Satellite Television
Independent Production (Television)
Community TV
TV Distribution
RADIO
Broadcast Radio ¹
Independent Production (Radio)
ANIMATION
Animation
INTERACTIVE MEDIA
Web & Internet
Computer Games
Offline Multimedia
Interactive TV
Mobile Content
OTHER CONTENT CREATION
Commercials Production
Corporate Production
Pop Promos
FACILITIES
Post Production
Special Physical Effects
Studio & Equipment Hire
Outside Broadcast
Processing Laboratories
Transmission
Manufacture of AV Equipment
Other Services for Film and Television
FILM
Cinema Exhibition
Film Distribution

1.6: Creative Skillset Sector coverage in 2006 (Creative Skillset, 2006, p.7)

The census covers all United Kingdom nations and regions and all full time employees - freelancers are only counted if they are working on the day of the census. In all, 2,519 responses (just over 19%) – out of a potential 13,000 – companies were recorded through online, telephone and paper questionnaires. The census covers employment trends, representation of women, ethnic minorities and disabled people.

The total number of responses from animation companies nationally was 148, this excludes other animation related activities including those under the umbrella of Interactive Media, Other Content Creation, Post Production and special physical effects; it must also be noted that a separate but complementary study was conducted for film production. It was also found that a total of 4,700 people were employed in the animation industry on census day, with 1,050 (57% of which were freelance) working in drawn/ stop frame animation and 1,900 (37% of which were freelance) in 2D/3D Computer Generated Animation. The total number of employees and freelancers per occupational group was as follows:

Occupational Group ²	Employees	Freelancers	Total
Producing	10,100	7,950	18,050
Production	8,350	9,400	17,750
Journalism & Sport	9,300	2,200	11,500
Radio Broadcasting	4,400	2,500	6,900
Television Broadcasting	2,350	200	2,550
Programme Distribution	900	150	1,050
Transmission	850	200	1,050
Broadcast Engineering	3,950	250	4,200
Studio Operations	1,900	700	2,600
Interactive or Games Production	25,550	6,500	32,050
Interactive or Games Operations	2,000	200	2,200
Interactive or Games Business	6,800	450	7,250
Draw/Stop Frame Animation	450	600	1,050
2D/3D Computer Generated Animation	1,200	700	1,900
Art & Design	2,400	1,400	3,800
Camera	1,050	2,000	3,050
Costume/Wardrobe	1,050	450	1,500
Library/Archives	2,750	1,700	4,450
Lighting	2,100	3,650	5,750
Make Up & Hairdressing	350	750	1,100
Post Production	7,000	4,050	11,050
Sound	1,600	1,550	3,150
Special Physical Effects	150	300	450
Runner	650	1,450	2,100
Cinema Projectionists	1,400	0	1,400
Cinema Box Office/Kiosk/Attendants	11,450	0	11,450
Cinema Cleaners	650	0	650
Cinema Management/Head Office/Team leaders	3,100	0	3,100
Film Distribution	950	0	950
Processing Laboratories	300	0	300
All Other Occupational Groups	32,250	4,250	36,500
Role Unspecified	3,600	1,050	4,650
TOTAL	150,900	54,550	205,500

1.7: Creative Skillset Census 2006 Employment totals (Creative Skillset, 2006, p.11)

In animation (considering the two categories of Drawn/Stop Frame and 2D/3D Computer Generated Animation) it was found that a total of 38% were freelance; and 6% of the audiovisual industry employment was in the East of England. When trying to examine the regional breakdown by sector for animation it was found that figures were rounded to the nearest 100 and so there was no official count except for the notion that the figures would be less than 50 and more than 0. See Appendix 1.4 for full Creative Skillset East of England Figures.

Animation and Creative Skillset

Within these sub sectors Creative Skillset acknowledge that animated content stretches across many of the sub sectors contained within the audiovisual industries including television, feature films, commercials, websites and computer/video games. Creative Skillset divide the animation industry into four main disciplines:

- *2D drawn or traditional*
 - *2D computer generated*
 - *Stop frame*
 - *3D computer generated*
- (www.CreativeSkillset.org/animation/overview/article_4455_1.asp, March 2006)

Creative Skillset note that primary products of the animation industry include:

- Pre-school storytelling and design
 - Feature films
 - Children's programmes
 - Games
 - Music promos
 - Titles and idents
 - CD-Roms (for educational purposes)
 - Adult comedy and drama
- (www.CreativeSkillset.org/animation/overview/article_4455_1.asp, March 2006)

Creative Skillset have also identified that there are seven drivers of change and productivity:

- Demand
 - Technology
 - Regulation/Policy
 - Competition
 - Workforce Demographics
 - Education and Training
 - Globalisation
- (*Creative Skillset, 2004, p.11.*)

These drivers have been examined on a nationwide level but have yet to be mapped against regional strategies, findings and issues.

Whilst the creative industries' development needs should be co-ordinated across Government, the DCMS has also identified that a department should collect all data that provides a cross sector view on the effects of all Government policies that effect creative

industries such as tax, regulation, competition and planning. In addition to this, very specific data needs to be collected for very specific sectors therefore providing a complete set of evidence from the broadly defined creative industries through to the audiovisual industries and on into subsectors such as animation at a local level.

Economic Impact of the UK Screen Industries

13 May 2005

Optima/Cambridge Econometrics

This report is mainly concerned with the effect of the input of revenue to the UK screen industries on a regional supply chain level. The data has been created through analysis of previous studies including data from the Annual Business Inquiry (ABI)* (based on survey results which are presented by region and once again by industry using standard industrial classification (SIC) codes) and sample surveys.

SIC 2003 parameters used:

92.11 Motion picture and video production

92.12 Motion picture and video distribution

92.13 Motion picture projection

92.20/2 Television activities SIC 2003 (CE/ Optima, 2005, p.45)

The five Screen industries identified are:

- Film
- Television
- Corporate video
- Commercials/Advertising
- Interactive

The study concentrated on the full value chain for each of the screen industries distinguishing the following four activities:

- Pre-Production
- Production

- Post-Production
- Distribution

* Conducted by the National Office of Statistics and provides very detailed data on economic activity and employment based on survey returns.

Screen Industries	Screen Sectors	SIC 2003
Film	Pre-Production	92.11
	Production	92.11
	Post-Production	92.11
	Distribution/Exhibition	92.12 & 92.13
TV	Pre-Production	92.20/2
	Production	92.20/2
	Post-Production	92.20/2
	Distribution	92.20/2
Corporate video	Pre-Production	92.11 & 92.20/2
	Production	92.11 & 92.20/2
	Post-Production	92.11 & 92.20/2
	Distribution	92.12 & 92.20/2
Advertising	Pre-Production	92.11 & 92.20/2
	Production	92.11 & 92.20/2
	Post-Production	92.11 & 92.20/2
	Distribution	92.12 & 92.20/2
(Rest of MDM industry 49 Miscellaneous Services)		(91, rest of 92, 93)

1.8: SIC Definition of Screen Industries used by CE/ Optima (CE/ Optima, 2005, p.A6)

In the above topics the subsector of animation, 2D and 3D was classified within the following:

- Film; Production
- TV; Production
- Corporate video; Production
- Commercial/advertising; Production

Although classified the data was not disaggregated beyond one of the five screen industries or four value activities. Data from the survey was used to create and explore findings on:

- Sales by the screen industries
- Employment
- Expenditure and Profitability
- Location shoots

Notable summary findings with regard to the **East of England** were as follows (Appendix 1.5 for full data tables):

	LO	SE	EE	SW	WM	EM	YH	NW	NE	WA	SC	NI
	(£ increase in value added output per £1 increase in export sales)											
Film	1.1	1.0	0.9	0.9	0.8	0.8	0.8	0.9	0.8	0.8	0.9	0.8
TV	1.1	1.1	1.1	0.9	0.9	0.9	0.9	1.0	0.9	0.8	0.9	0.8
Corporate video	1.2	1.1	1.0	0.9	0.8	0.8	0.9	1.0	0.9	0.8	0.9	0.8
Advertising	1.2	1.2	1.0	0.9	0.8	0.9	0.9	1.0	0.9	0.8	0.9	0.8

Note(s) : Multiplier = increase in the region's entire value added over four years per unit increase in export sales by firms in the specified industry and region.
 Figures in the table have been rounded to one decimal place.

Source(s) : Cambridge Econometrics.

1.9: Regional Dynamic Multipliers for Value added Output (CE/ Optima, 2005, p.ix)

The East of England had multipliers greater than one for both TV and advertising, this was one of the highest values after London and the South East, only equalled by the North West. It is suggested within the report that despite the East of England having low concentrations of TV and advertising activities, the economic impact on the East of England is boosted because it is a relatively large region and has a high representation of supporting services such as financial & business services and communications policies. (CE/ Optima, 2005, p.ix)

As can be seen in the table below, in the case of the sub sector of TV the largest UK multipliers are for the East of England, the South West and Yorkshire & the Humber due to a relatively high inclination to spend from increases in incomes. The lowest multipliers are for the North East and Wales with lower propensities to spend:

	LO	SE	EE	SW	WM	EM	YH	NW	NE	WA	SC	NI
	(£ increase in value added output per £1 increase in export sales)											
Film	1.8	2.0	2.1	2.4	1.8	1.8	2.0	1.9	2.1	2.4	2.5	1.6
TV	1.9	2.0	2.3	2.2	2.0	2.1	2.4	2.0	1.8	1.8	2.1	2.2
Corporate video	2.1	2.0	2.1	2.0	1.6	1.4	1.6	1.6	2.1	2.2	1.7	1.9
Advertising	2.1	2.5	2.3	2.2	1.5	1.4	1.7	1.8	1.9	2.1	2.2	2.0

Note(s) : Multiplier = increase in the UK's entire value added over four years per unit increase in export sales by firms in the specified industry and region.
 Figures in the table have been rounded to one decimal place.

Source(s) : Cambridge Econometrics.

1.10: UK Dynamic Multipliers for Value Added Output (CE/ Optima, 2005, p.x)

The report also details that the largest impact on tax revenues was for the East of England. The report states that this was because there were situations in which revenues were boosted by the relatively strong employment impact along with high average earnings in the region.

The Wider South East Economy (WSE), including the South East and the East of England, experienced the most boosts due to the supply chain and links with London. The report suggests that for the WSE regions, long-term policies designed to encourage investment in a 'deepening' of the screen industry linkages which also boost the size of the national multipliers, may be better directed to enhancing the existing clusters of audiovisual activities that strongly distinguish the London and WSE offer. It is also suggested that further engagement in more joined up activities between regions would be highly beneficial. Within the report other regional studies are referred to, the findings from these reports will be explored in the last section in this chapter.

Notable findings

By using the method of multiplier analysis, the report gives a pragmatic view of the economic outcomes and consequences of outside demands on the screen industries at a regional level as well as comparatively between regions. It is considered to be a vital tool for informing government policy developments to encourage regional and national development in this area. The report suggests that those regions with lower output have a concentration of cluster activities.

This will consolidate both physical and virtual assets to many of the regions and increase supply chain activities through a more 'joined-up' approach. A greater 'mass' will in turn allow for a greater input to the global market. It is pinpointed that some specialist niches of particular regions are successful in relation to global competition but this could be more effective with some government intervention to support the less effective screen industries who are restricting the potential size of the general industry. This approach would allow for a more balanced move towards regional development. It is suggested that better supply chains need to be developed:

*...to link production up the value chain to creative conception and financing,
and to link down the value chain to distribution. This would be a sensible*

objective for a policy designed to both increase the level of activity, and to get better returns on that final demand that is attracted by government-backed initiatives. The particular value of the current study is that it provides a clear picture of how any regionally directed spending or support arrangement would currently flow in its economic effects across the regions, but the study also facilitates an understanding of how changes in supply chains could change the economic benefits and contributions of the component screen industries to the national outcome. (Optima et al, 2005, p.viii)

The report notes that multi-sectorial working is wide spread:

...with close to 50% of firms operating in more than one sector, ranging from 35% of firms in the South East to 67% in Northern Ireland. (CE/ Optima, 2005, p.xiii)

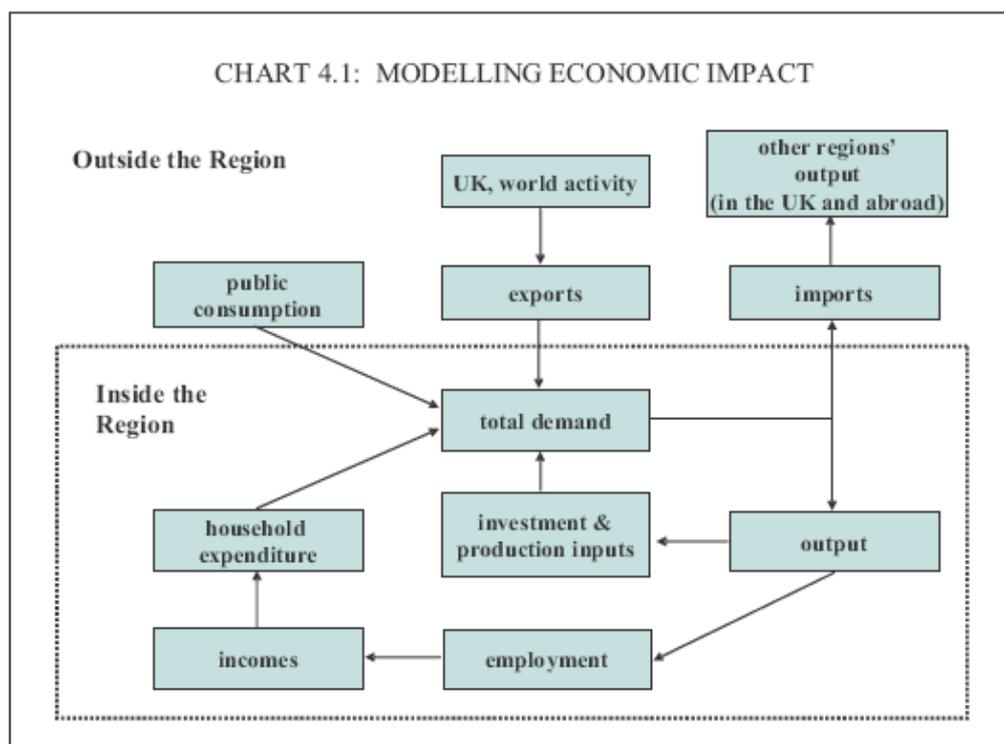
Because of the 'low regional' multipliers this would suggest that supply chains are not working as effectively as they potentially could, particularly in terms of the vertical models linking up the value chain from concept to financing and ultimately to distribution.

Multiplier Analysis methodology

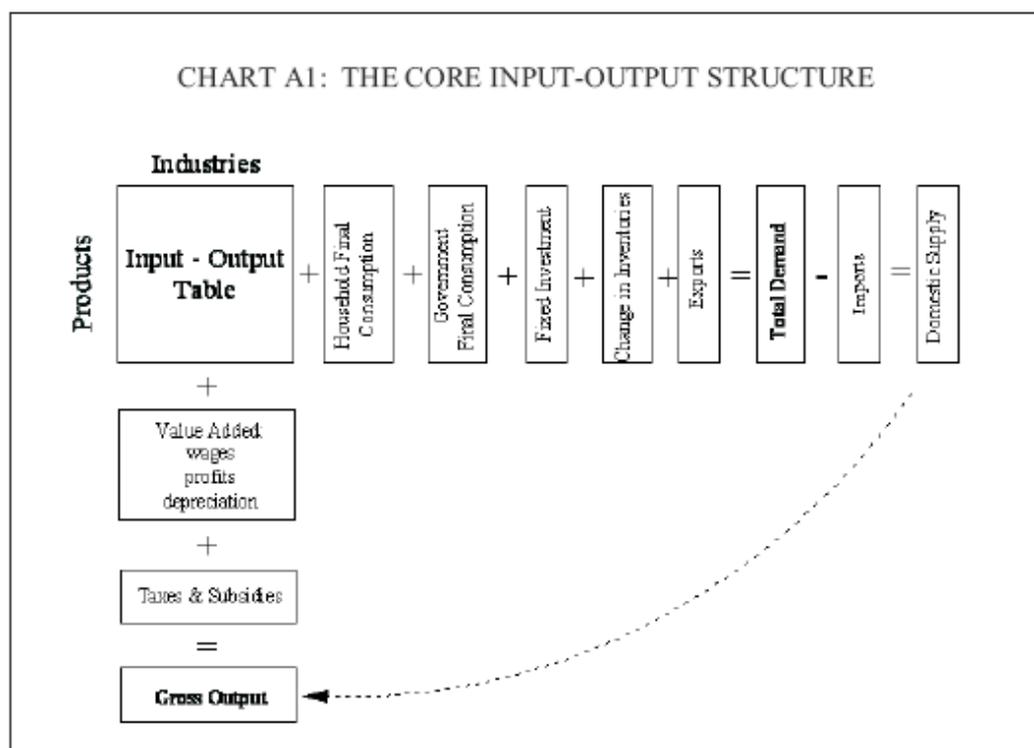
A multiplier is used to assess the dynamic impact of an industry. It measures the direct effect of expenditure on an industry, the indirect effect on suppliers of inputs to the industry, and the induced effects from incomes and spending. The multiplier measures the eventual increase in income resulting from the initial boost to expenditure. (CE/ Optima, 2005, p.iv)

The term 'regional multipliers' refers to the notion that the greater the linkages in the industry and lower the leakages i.e. on tax or imports from elsewhere etc., the larger the income. All industry needs to purchase input in order to create outputs and the outcome is also dependent on how other companies in the region spend their money on the supply side and the location of the suppliers in relation to the region. The Model used within this CE/Optima report is the Cambridge Econometrics' Multisectoral Dynamic Model (MDM), which is a regionalised input-output model of the UK economy, including government office regions, Wales, Scotland and Northern Ireland.

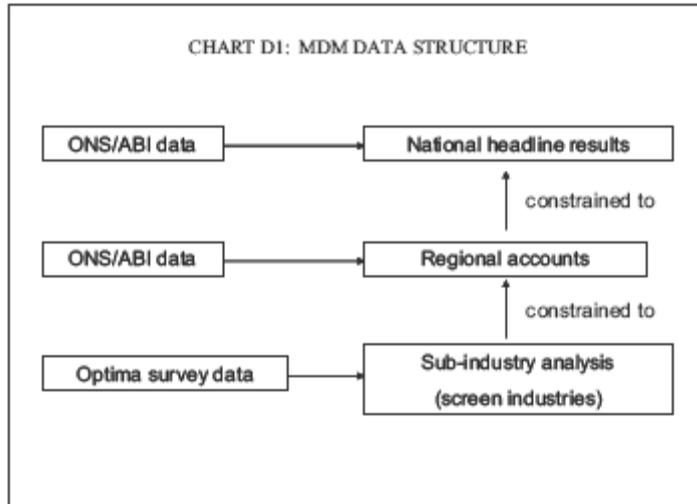
MDM represents explicitly the linkages within the screen industries and between the screen industries and other industries, within the region and across other UK regions and nations, and outside of the UK. Such linkages allow survey information on sales and purchases to be incorporated into a full economic multiplier analysis. (CE/ Optima, 2005, p.64)



1.11: Modelling Economic Impact (CE/ Optima, 2005, p.65)



1.12: The Core Input-Output Structure (CE/ Optima, 2005, p.A2/ 110)



1.13: MDM Data Structure (CE/ Optima, 2005, p D1/ 133)

Regional multipliers are highest in regions with large amounts of supporting services and smaller when leakages from the economy are greater. The report also finds that larger regional economies tend to be more self-sufficient especially if there is a strong representation of screen industries based in the region. This, in turn, leads to an increased demand for various screen related industries and those related in the supply chain as well as supporting industries. These methodologies further relate to employment and expenditure.

The report refers to 'Screen industries' such as film and television (including interactive TV*) production. Towards the end of the literature it notes that the interactive media industry is omitted from this study. Although it is a growing industry, the report admits it cannot as yet be defined because the boundaries are constantly changing, therefore meaning the same methodologies used in the study cannot be applied. It is noted that the DCMS DET classifies leisure software, digital art and new media activities under interactive media, considered by the DCMS to be consistent with Creative Skillset's approach. In relation to the DCMS DET:

TABLE 5.1: INTERACTIVE MEDIA INDUSTRY STANDARD INDUSTRIAL CODES

SIC Code	Definition	Cultural Cycle
72.21	Software publishing	Dissemination
72.22	Other software consultancy and supply	Creation
92.20/2	Television activities	Creation
NFW	Leisure software design/development	Creation
NFW	Production of new or multi-media	Making
NFW	Publishing of leisure software	Dissemination

Note(s) : NFW = "Needs further work".
 Source(s) : Department for Culture, Media and Sport.

1.14: Interactive Media Industry Standard Industrial Codes (CE/ Optima, 2005, p.76) *In accordance with Creative Skillset and DCMS DET methodologies (p.82)

This is as far as the sector can be classified as there is an absence of codes which hinders the extrapolation of any ABI data that has been collected for the Interactive Media industries, this in turn affects supply chain data that could be collected in relation to the DET. The report attempts to gather relevant data to create some idea of the interactive media industry along with comparisons with the computer games industry and possible similar multiplier effects.

Despite the drawbacks of lacking definitions for the interactive media industry, this report supplies an extremely advanced model for potential data collection methodologies in the form of a survey approach undertaken to back up findings from government approved analysis. This methodology attempts to *"...articulate inter-regional feedback effects or assure consistency at national level"*. (CE/ Optima, 2005, p.39)

The methodology applied by the CE/Optima Report allows for greater review of the screen sector and supply chain at both a regional and national level consistent with government data collection. However, it does not offer this information at a specific sector and location level but incorporates all screen industries into production and value chain activities. The report draws on limited Creative Skillset research and classifications, with no mention of the possible impact of the data or comparison to the sector skills council activity in this area.

The Big Picture

Within the *Big Picture* report (2006) by Holden for Demos detailing the Regional Screen Agencies' work around the country it takes the above mentioned (Optima, 2005) report into account but also refers to the term "screen and moving image sector":

...used to refer to any screen-based activity in which the moving image industries engage. This includes TV and film production, exhibition, corporate film-making, animation, games and software production, screen-based learning for young people, film-tourism, script-writing, multi-platform innovation, screen archives and location work. (DEMOS, 2006, p.11)

The report was published in May 2006 by Demos Head of Culture John Holden, whose partners include policy-makers, companies, public service providers and social entrepreneurs.

The Screen Agencies were set up in England between 2002 and 2004 to address the specific needs of the audiovisual sector at a regional level in line with the subsequent recommendations of the Cox Review of creativity and design in UK business (December 2005).

The Big Picture and Screen East

This independent report by leading think tank Demos entitled *The Big Picture* commissioned by Screen England has highlighted the work of the regional screen agencies. It pinpoints the work being undertaken at the time by these agencies as well as areas that may need development.

Firstly it is necessary to highlight the fact that the funding provision for the UK screen agencies is made by the UK Film Council in addition to the Regional Development Agencies and it is the DCMS that establishes the core policies:

RSAs operate in each of the nine English regions, and the Regional Development Agencies are among their major supporters and funders. RSAs are involved in all aspects of the moving image – production, training, locations, business development, archives, education, festivals, cinemas. Their main national sponsor is the UK Film Council, yet they

operate beyond the bounds of film into computer gaming and other digital platforms. (Demos, 2006, p.2)

Each Screen Agency has its own distinctive provision of support and has adapted and developed to serve the needs and strengths of the local audiovisual community.

One of the RSAs most significant activities is nurturing talent and developing sustainable infrastructures and networks to underpin economic development. (Demos, 2006, p.3)

The report outlines four major issues that the Regional Screen Agencies should attend to in order to create efficiency and coherency in their approach to policy:

Advocacy

Communicating the value of the work of the RSAs

Coordination

Sharing knowledge and practice amongst the RSAs

Collaboration

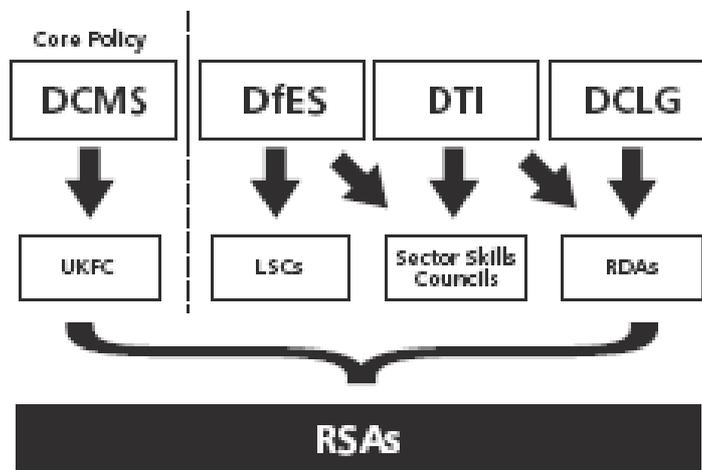
Opportunities for RSAs to partner other bodies to support the moving image sector.

Leadership

Identifying the value of different areas of their work.

In its introduction, the report also points out that it may not always be quite as simple to allow for coherency across the board with regard to, or as a whole body of screen agencies:

The RSAs provide one point of contact for their sector in the regions- but they themselves do not have one point of contact within government. (Demos, 2006, p.4)



1.15: Government linkages with RSAs (Demos/Holden, J, May 2006, p. 8)

This allows for the RSAs to be involved in many aspects of policy across departments including involvement in the findings of the Contribution to *Creative Economy Programme*. But from a government view this can be overlooked if a solution isn't found to allow the RSAs to unite to lobby on national issues. It makes many of the above categories being applied less than satisfactory, as a united approach is not being taken in all regions.

Each RSA has a board of industry professionals and sector specialists who provide guidance to the RSA as well as representing the region at a national and international level.

Much of the data within this report is based on the Optima data collection and although the following *DCMS Creative Industries Mapping document* (2001) areas are highlighted as being part of the screen sector, gaming and software data is not accounted for in the data supplied:

- Film and video
- Television and radio
- Interactive leisure software
- Electronic publishing
- Corporate video and advertising

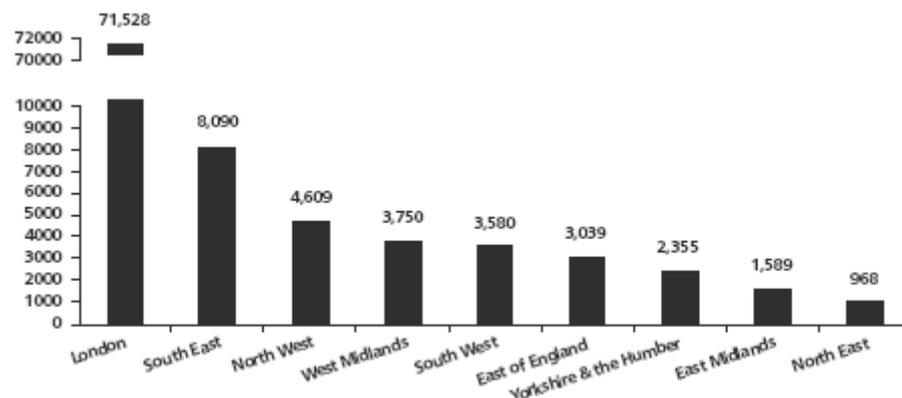
Within the report, it is highlighted that the screen and moving image sector will include the following:

TV and Film Production and Exhibition
Corporate film-making
Animation
Games and software production
Screen based learning for young people
Film-tourism
Script-writing
Multi-platform innovation
Screen archives
Location work (Demos, 2006, p.11)

The report sets the scene by presenting a picture of the contribution of the screen and moving image sector to the UK economy and its growth in preceding years noting:

We know that between 1997 and 2000, the audiovisual industries grew more than three times faster than the UK economy as a whole and in 2000 generated £4.1 billion exports. (Creative Skillset, 2005, p.2, in Demos, 2006, p.14)

Below, the study highlights the numbers of people in permanent employment in the screen and moving image sector:



1.16: Full Time Employment Count in the Screen and moving Image Sector (Demos, 2006, p15)

The study notes that the RSAs are in an optimum position to develop the screen industries within their regions through building an expert knowledge of their region’s profile, production base and specialisms acting as a catalyst for growth between local, national and international sustainable infrastructural opportunities. It is stated that RSAs have the potential to encourage and market the regional distinctiveness of their area whilst still appreciating the supply chain links beyond said region. Sustainability of the industry is key:

Economic growth begins with the creation of relationships with organisations and individuals with ideas that have commercial potential. RSAs help to develop

an individual's interest in screen production into a career of economic value.
(Demos, 2006, p.28)

The report mentions the barriers to RSA's support of practitioners working in the moving image sector, beyond supplying highly specialised sector-specific data, the RSAs need to identify and target the groups that may need their support and how best to give it:

It would be impractical – and unreasonable – to expect generic business advisors, such as Business Link, to provide detailed advice on how to develop and market a script, or build and grow an animation company. There are perceptual barriers to overcome, too. Some on the cultural side of the equation question the suitability of such organisations as Business Link in relation to the screen and moving image sector. Suspicions, such as that of a member of one cultural consortium, that “they are driven by numbers” are far from isolated. Such comments are, of course, one-sided, but they do indicate a feeling within the moving image sector that there is a need for business advice that is tailored more specifically to their needs. (Demos, 2006, p.30)

Finding funding can often be an issue, especially at a regional level. Dangers associated with the insular nature of regional initiatives are considered to be less of a problem when funding is distributed through RSAs who have the benefit of a better developed overview of the industry and sustainability issues beyond this level. The RSAs also endeavor to ensure that the funding is used to support and develop the infrastructural cycle of the industry as well as production:

Ultimately, the Screen East fund aims to help redefine the region as a centre of media production within the wider UK and world media industry. On a day-to-day level, it provides much-needed support for small enterprises; owner/managers speak of “breathing space” – the time and space needed to develop new creative ideas. (Demos, 2006, p.35)

The remit of Regional Screen Agencies covers training, education, exhibition, production and cultural diversity; this must encompass a thorough knowledge of the audiovisual sector and a complete overview of their region in relation to this. In addition, and as mentioned above, the RSAs have a broad link to various Government departments and concerns which they must fulfil. The study notes that a lack of coordination across agencies and identification of the work they are doing could potentially lead to their decline.

Summary of Key Issues (Section Two)

• Standard Industrial Classifications

A clear theme of supply chain and connection has emerged through this second section of the literature review. DCMS DET evidences that it is essential to measure and acknowledge the 'depth' of related industries from Creative through to audiovisual and ultimately subsectors such as animation. By 'depth' the DCMS is referring to links in the production and supply chain- both 'up' to finance and 'down' to distribution (CE/Optima, 2005, p.xiii) as well as acknowledging 'drivers of change and productivity' as identified by Creative Skillset. Clear and universal subsectors of creative industries, such as the audiovisual domain, need to be defined accurately and although the DCMS are attempting to set a framework for this, the continued lack of thorough and up-to-date Standard Industrial Classification (SIC) is impeding this development. This makes it extremely difficult to identify activities such as animation within the diversity of contexts.

• Limited regional data

The SIC code fluctuations further affect both the parameters of the Sector Skills council and data set comparisons as SIC constraints fluctuate. Therefore, the Sector Skills Council use their own industry-approved system, dividing the audiovisual domain into ten subsectors. Using this data and additional national statistics, a greater overview of national and regional statistics can be reached. Creative Skillset conduct a bi-annual census counting only employees and freelancers on the day of the census. This does not take into account relative disciplines and is based on individual's occupational self-classification. The regional breakdown for the East of England was not registered as it fell below fifty individuals but was greater than zero. This means that there is no data available relating to the actual number of those employed or their occupations relating to Creative Skillset's subsector of animation in the East of England. This makes any policy development based on industry intelligence unstable.

• Sectoral definition

Throughout the research for this study, it was found that although there is a very strong momentum in terms of moving the sector up the policy agenda, there is a lack of definition for subsectors of the creative industries such as the audiovisual sector:

...this has not been followed up with a strategy of clear vision for Creative Industries at a national level. Strategy development for the Creative Industries sector is, though, being undertaken at the regional level, as it is the only sector to have been identified as a priority by all nine RDAs. (LDA, 2003, p.5)

Much activity is taking place amongst key public agencies and relevant organisations but with little co-ordination between the aforementioned bodies:

The challenge for those developing evidence based strategies... is not so much the absence of data, but rather the difficulties around collating, aggregating and comparing data from a wide variety of sources, almost all of which have undertaken research according to their own individual purposes, definitions, classifications and methodologies. This lack of a co-ordinated approach to collecting and managing data means that it is very difficult to make regional or sector-wide strategies securely based on robust and comparable data sets. (LDA, 2003, p.30)

• Co-ordination of evidence

The data available is extremely limiting to those wishing to investigate any subsector of the creative or audiovisual industries at a local level. There is a distinct lack of co-ordinated comparable evidence including both economic and physical intelligence. Creative Skillset have begun to coordinate, collaborate and consult on research methodologies and this can be seen through their regional skills strategies and action plans for the audiovisual industries.

It is clear that the pressure placed on the regional screen agencies exceeds their funding ability and with such a breadth of coverage to provide it is not surprising that there may be failings. Further collaboration could possibly be a solution to this issue. The UK Film Council had noted within its research into the infrastructure and activity of the nation's moving image industry that:

Existing fragmentation of film interests across scores of small competing and under-resourced bodies is impeding the overall development of film in the regions. (UK Film Council, 2000, p.36)

Considering that the Screen Agencies came into operation in 2002 and that the above report (*Film in England: A Development Strategy for Film and the Moving Image in the English Regions*) was the catalyst to this development, it is interesting to note that the audiovisual industries still find themselves in a similar situation at the time of writing (2008).

Section Three

The East of England

The regional research data collected by Government and non Government departments at the time of writing (2008) varies in quality and relevance to the terms of the subject matter of this thesis.

The Creative Skillset report on *the East of England Skills Strategy for the Audiovisual Industries* (November 2004) is the most relevant and reliable as it makes use of all of the above mentioned sources, however it does not allow for further breakdown into subsector and regional areas beyond that of the East of England. A further study carried out by the East of England Cultural Skills and Learning Group entitled *Development of a Skills Matrix for the Creative Industries* (October 2003) further reviews the audiovisual industry in terms of supply and demand for training and has been developed in line with the DET from the DCMS. This report highlights skills gaps in domains and sectors, but once again does not allow for analysis of a specific regional area or pinpointed cluster. Around the same time (2003) the *East of England Creative Industries: Advice and Analysis report* was being developed. This report which is frequently cited as the most influential measure of creative industries in this region is based on the DCMS original industrial subsectors (defined by SIC classifications) and is therefore only comparable with studies of a similar classification and crucially excludes an audiovisual domain.

East of England Creative Industries: Advice and Analysis

Final Report

In February 2002 the East of England Development Agency (EEDA), Arts Council England (East) and Living East (cultural consortium for the East of England) commissioned DTZ Peda Consulting and City University London to create a report on the East of England's creative industries, providing an analysis of the shape and size of the industry along with recommendations for development and support to inform the growth of a strategy for this area.

The East of England Creative Industries: Advice and Analysis, Final Report, was essentially a mapping study of the creative industries in the East of England (covering Bedfordshire, Essex, Cambridgeshire, Hertfordshire, Norfolk and Suffolk). Three hundred companies in these areas were surveyed by telephone and the findings detailed and analysed within this account. In order that the data had some comparability, the mapping was based on the DCMS creative industry subsectors relative to the Sector Industrial Classification (SIC) codes at the time including:

Advertising

Architecture

Art/Antiques Trade

Computer Games, Software, Electronic Publishing

Designer Fashion

Film

Music and the Visual and Performing Arts

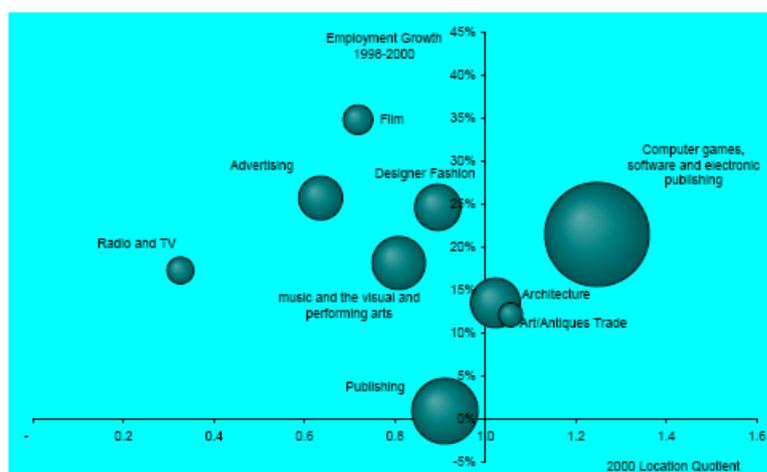
Publishing

Radio and Television

“Those activities which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and creation of intellectual property.” (DCMS, 2001, p. 04)

The report acknowledges that there are many issues with trying to measure the creative industries in this way, including that simply by measuring the number of creative industries in the region, one cannot assume that each person working at each enterprise is a creative, some employees may be working in secretarial, administrative or legal positions. The DCMS expresses some concern within the report for those using their subsectors to map the clarity of SIC or Sector Occupation codes (SOC). They recognise that, when it comes to sympathetic measurement of the creative industries, these classifications lack sophistication in terms of defining breadths of the sectors. Apprehension is articulated in the DTZ Pieda report, regarding the issue of small sample sizes and accurate disaggregation of data at a regional level. The DCMS was said to be reviewing this, but at the point of writing this report had not yet provided guidelines to overcome these limitations. In the interest of cohesive research, DTZ Pieda decided to stick with the existing framework.

Figure 1: East of England Creative Industries Specialisation



Source: LOCUS™ using ABI data (© Crown Copyright)

1.17: East of England Creative Industries Specialisation (DTZ Pieda, 2002)

Among the key creative industries in the region, computer games, software and electronic publishing is a clear sectorial specialism especially around the city of Cambridge. It is noted as one of the most prominent clusters, along with Norwich for television and animation and Hertfordshire for film production.

The report specifies that the subsector of games, software and electronic publishing is the largest creative industry in the region detailing that the survey found that much revenue was brought in through national and global business collaborative projects based in Cambridge and its surrounding areas. Larger multinational companies were found to be based in the area including Microsoft as well as a host of SMEs which also prosper from this industry. Cambridge also has a strong historical background in research and development and education which has sustained this growth. The East of England is ranked third in the country for its industry in this area with the largest concentrations of employment around the West of the region and in particular Cambridge where:

...the computer games, software and electronic publishing represents over half of all employment in the creative industries. (DTZ et al, 2002, p.15)

The report identifies that the sector is growing, with Norwich experiencing the highest growth but still with one of the smallest concentrations of these industries. Much convergence is also taking place between companies and other creative industries especially within digital TV and mobile content. Over half of the employees were working in creative professions on a full time basis, notably as software engineers, with graphic designers being the smallest employee group.

Film is considered to be the region's fastest growing sector with key locations in Hertfordshire as well as Norwich with niche strengths such as referenced here for animation:

...with its considerable strengths in animation, leading courses at Norwich School of Art and the new Film Arts Norwich (FAN) International Animation Festival. (DTZ et al, 2002, p.22)

Most of the employment centres around the south and west of the region, with clusters based around facilities that support relative specialist skills. Hertfordshire has over 100 companies operating in the area of film and some of this success is attributed to its proximity to London. There are other smaller production clusters in Cambridge, Norwich and Ipswich. Just over a third of the employment within these companies is identified as creative. This is much lower than the UK average in the Creative Industries which is normally assessed at around fifty percent. A large proportion of the workforce is self-employed or freelance, attributed mainly to the sporadic nature of productions at the facilities. It is noted that business skills development and mentoring is required for the newer, smaller and niche sector companies and animation is used as an example of a subsector that could benefit from this support.

Radio and TV is identified as an industry of lessening influence, partially attributed to the region's proximity to London and the decline of regional broadcasting. It is noted that independent TV and radio tends to cluster around the regional production centres of Norwich and Cambridge. This, in turn, affects the creative occupations as less creatives are required compared to staff involved in administrative work within the 'branch' of a larger broadcaster based elsewhere. It is acknowledged that there is an increased move towards multi-skilling in an effort to save on overheads, but with developments in new technology, there may be new outlets for TV and radio production. It is identified that there is a lack of affordable training for freelancers in order to increase their skills, there is also a sense of isolation among the dispersed sector which could be combatted through the development of networks and cluster groups in order that professionals can meet and collaborate.

The report identifies the creative industries in the East as being characterised by specialised clusters around production centres and transport links. There are issues with employment growth, many areas seeming to have reached their limits or beginning to decline. Strong growth was only being found in previously undeveloped areas in 2002. The proximity to

London is considered both a strength and weakness in that the pull of London can be too great for creative industries based in the East to compete with and retain graduates however the region offers lower costs and overheads and a better lifestyle balance. Issues surrounding training provision and accreditation were identified in all of the above industries, along with validation and worth of qualifications achieved.

The report explores existing support structures for creative industries in general terms; it also highlights the need for additional linkages with Further and Higher Education, other generators of IP (Intellectual Property) and support in the form of subsidies and interventions already available. It concludes by recommending that weaknesses are tackled through specific support for specific industries as well as increasing graduate skills and abilities in the general areas of business, management and organisational skills, providing a stronger entry route directly into the creative industries. Increased awareness of schemes and initiatives available to creative industries is needed, along with the development of networking and collaborative opportunities necessary to grow the industry.

This report contains both primary and secondary data. All secondary data was gathered from government accredited information collections including the ABI SIC data, Labour Force Survey (LFS) SOC data. Both had problems with the disaggregation of data below national level, along with noncomprehensive sector classifications and definitions, which is duly noted as an issue for the report to contend with. Much of the data was supplemented by unofficial sources of company information as well as DTZ et al's own face-to-face and telephone interviews with over thirty representatives of the industries included within the report. Further to these structured interviews, a formal survey of 300 companies across the sample was also undertaken. In terms of methodology the report offers a good initial framework for the commencement of this research and provides some key starting points in relation to data and triangulation.

Development of a Skills Matrix for the Creative Industries

This project and research document was released in October 2003. It was created by Paul Owens and Peter Booth at Burns Owens Partnership and Positive solutions respectively. The project was originally conceived by Professor Bob Reeve at Anglia Ruskin University and delivered with the support of DCMS, EEDA, Living East, Arts Council England, Screen East and the European Union Social fund. The report is a summary of the research and a

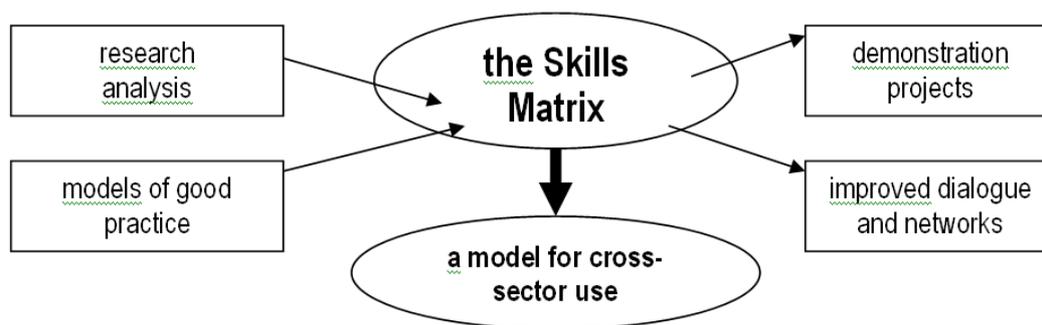
description of what went into the development of the proposed Skills Matrix. The key issues for the project were the skills needs and delivery of support for the creative industries in the East of England.

Two main features of the process were:

- *mapping the data on demand against the data on supply*
- *using this analysis to assess where demand is being met, where practice is good, and where there are gaps.* (Owens and Booth, 2003, p.34)

The matrix is proposed as a primary tool for mapping data and the diagnosis of skills needs plus supply gaps in the region. As a result of the analysis three demonstration projects were developed using the matrix process to inform their development. These projects are at differing stages of development and no results are quoted within the document.

The report is divided up into sections in accordance with the diagram below. Outlining what the matrix is and how it can be used:



1.18: How the Skills Matrix for the Creative Industries can be applied (DTZ Piedad, Oct 2003, p.7)

The research seeks to identify skills provision through mapping the learning and skills providers in the region. This is done through interviews and questionnaires to all HE and FE institutions with appropriate creative courses as well as private and informal sector trainers. The demand side mapping was found to be more complex consisting of desk research and a trawl of data available at the time on the creative industries in the East.

The report frequently notes the marked lack of data pertaining to this area that hinders any great progress beyond this initial phase. The research defines the creative industries in terms of DCMS definitions for the Regional Cultural Data framework as seven domains,

including the audiovisual production chain. The research starts by first exploring the make-up of the creative industries in the East of England drawing heavily on the East of England Creative Industries: Advice and Analysis report, 2003. However, because the data was organised into different sectorial definitions, skills issues could not be derived from the aforementioned research.

Main issues raised in this section of the literature review are that there is a critical inadequacy in the collection and dissemination of good regional data hindering targeted responses to any industry issues that are present. There is also a lack of structured, cohesive support and flexible training beyond formal qualifications. With regard to the demand side of training and support, it was found that there are some models of good practice operating in the region and these were used as case studies and evidence to back up recommendations. It was found that skills needs could be classified into gaps and shortages. Due to the nature of the creative industries most subsectors suffer from skills gaps, as there is an oversupply of new entrants who have the majority of skills required but are lacking in some specific abilities and they require additional training in most cases. Most notably to this research it was found that skills gaps occur as:

Audio-visual

ICT or using technologies as a creative tool

Management and business skills, including sales and marketing, administration, accountancy, financial planning and staff recruitment

Audiovisual: animation

Basic drawing skills, capability to exploit opportunities in digital content creation, pre-production, producing and production management, training for trainers (BOP, 2003, p.17)

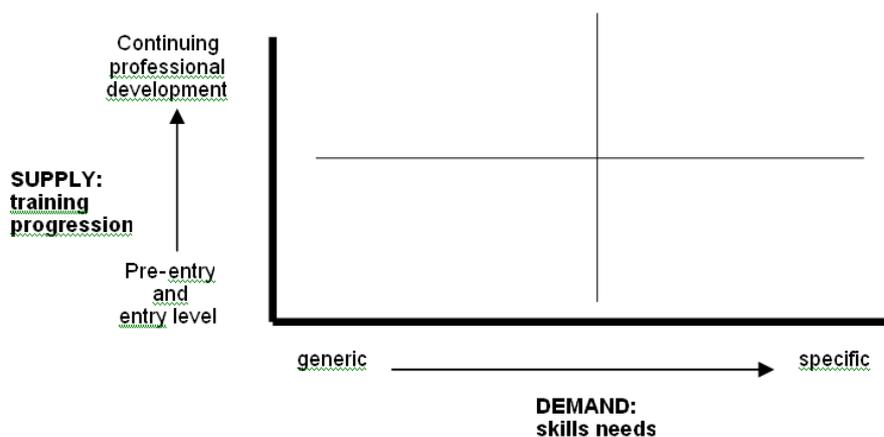
The report notes that this is national data and that the quality of data for the region is mainly anecdotal highlighting that much training and support is developed without accurately defined research to meet that need:

What is clear is that the quality of the data available in the East of England region is poor both in terms of the detail available and the frequency with which it is updated. (BOP, 2003, p.18)

The report makes a number of recommendations for the HE and FE sectors including greater collaboration with local industry and involvement in local networks. With the private and informal training sector under consideration one main issue is how to ensure that opportunities are more widely publicised. Finally, it discusses key support agencies,

highlighting the difficulty facing generic support organisations to supply sector and sub-sectoral specific support, making it relevant and cost effective to supply the required expertise, sometimes on a micro-level. It highlights the importance of ensuring that creative businesses are aware of useful and relevant support that is available to them.

The actual matrix design is regarded as a working in progress rather than a final product:



1.19: Skills Matrix Design for the Creative Industries (DTZ Pieda, Oct 2003, p.34)

The function is primarily to chart training progression against skills needs- from generic to specific. It is made clear that training needs in all areas can come at varying times in careers and job roles, and that generic training might be best tailored to specific sectors. Owens and Booth note that this diagram throws up several dilemmas facing training and support providers which will need to be explored in the long term. This process intends to identify good practice already available and build upon it through matrix analysis. The model will provide a short and longterm framework in order to shape the planning of how best to research what is required in a structured and methodical manner but, without proper industrial data at a local sub-sectoral level, it can only provide a national and at best regional template for development.

East of England Skills Strategy for the Audiovisual Industries (Interim Strategy)

During the Autumn of 2004, Creative Skillset (the Sector Skills Council for the audiovisual industries) worked on the development of a skills strategy for all of the UK's nations and regions. As a result an interim skills strategy was produced for the East of England in partnership with Screen East (the Regional Screen Agency for the East of England). This

strategy was intended to be an intervening review allowing Creative Skillset to gather evidence on the audiovisual industries in the East of England and from that point develop a strategy for the development of skills. This report was produced in order to aid the development of the Sector Skills Agreement for England (SSA) through detailed research and the development of a clear understanding of the shape of the audiovisual industries:

To achieve this, Creative Skillset has been carrying out a range of research to help us to understand in detail the skills needs and priorities of employers, employees and freelancers and what is currently available and being done to meet these needs. (Creative Skillset, 2004, p. 1)

The intention of these initiatives was to produce a cohesive set of actions from a national to a regional perspective, starting with the development of sector skills strategies for film, TV and interactive media.

The report gives a brisk overview of the audiovisual industries in national terms, outlining the subsectors included under the sector of audiovisual industries:

*TV and radio broadcasting
Independent production for TV and radio
Film production and distribution
Cinema exhibition
Animation
Commercials
Corporate video production
Facilities
Interactive media and games
Photography, photo processing and retailing
Manufacture of photographic equipment and materials
Picture libraries (Creative Skillset, 2004, p.2)*

It also details seven key drivers of change that are key priorities to Creative Skillset as the industry develops through to 2010 these are:

Demand
Technology
Regulation/Policy
Competition
Workforce Demographics
Education and Training
Globalisation.

The report predicts that smaller companies and freelancers working in competition with one another, would need to consolidate in order to handle larger and more complex

interactive media projects and compete on an international level. It notes that further issues may also arise within education and training as the qualification of a degree becomes more and more commonplace, citing a possible need for additional qualifications, and discussing implications for specific skills as well as additional types of skills that learners will need, such as business and individual personal skills.

From the 2004 census results it was found that interactive media was the highest employer and growth area, with around 50,000 people working in this subsector, including web designers, offline multimedia producers and electronic games creators. Nationally the audiovisual sector is made up of a young workforce with a large number of small businesses employing a high percentage of freelancers.

Creative Skillset define the East of England as Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Norfolk and Suffolk. In terms of employment their findings for the 2004 Census appear as below:

Table 1: Employment levels by sub-sector and employment status in the East of England

	Employees		Freelancers		All	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
All	2,320	66	1,200	34	3,520	100
Broadcast TV	530	75	180	25	710	100
Cable and Satellite TV	0	-	0	-	0	100
Independent Production	110	42	150	58	260	100
Broadcast Radio	530	66	270	34	800	100
Animation	20	50	20	50	40	100
Post-production	80	42	110	58	190	100
Digital Special Effects	10	100	0	0	10	100
Facilities (studio/equipment hire)	310	56	220	44	550	100
Web and internet	70	78	20	22	90	100
Electronic games	120	63	70	37	190	100
Offline multimedia	430	83	90	17	520	100
Commercials production	20	100	0	0	20	100
Corporate production	40	40	60	60	100	100
Other	50	83	10	17	60	100

Source: Census, 2004

1.20: Employment levels by sub-sector and Employment status in the East of England (CSS, 2004, p.4)

Despite being in the lower ranges of the table in terms of people working as employees or freelancers in the sector of animation, it still gets a special mention with an overview of the industry profile (a statement similar to that noted in BOP, 2003 report):

Animation

Animation is an emerging media for the region based around Norwich. Growth has been stimulated by the FAN (Films Arts Norwich) animation festival, Norwich School of Art's graduate and post-graduate courses in animation and related fields and the presence of companies such as Red Fox Productions. (Creative Skillset, 2004, p10)

Further to animation production, computer software development and interactive leisure software is noted to be situated in a 'significant cluster' around Cambridge. This is identified as an important source of revenue to the region in terms of content provision and intellectual property (IP).

There are no sub-sectoral break-downs documenting skills needs in the East of England. Understanding of the situation within the report is based on a Skills Intelligence Network (SIN) survey of the East of England and it is noted these views may not necessarily be the views of the whole industry but that they provide a starting point for investigation.

The survey details types of training undertaken and how the training is most likely to be carried out and by whom. Many respondents appear to have in-house training and require mentoring on the job. Data from National Employer Skills Survey (NESS) suggested that there are no huge recruitment problems in the region with a very low range of hard-to-fill vacancies. Creative Skillset point out that NESS sample sizes are too small to allow conclusions to be drawn on the causes of recruitment difficulties.

The report outlines six recommendations, which are based on concerns already raised by the audiovisual industries through the trawl of previous research, general UK wide issues or predicted issues. These recommendations have detailed priorities attached to them and theoretical views of who (Creative Skillset/ Industry/Government) potentially should be responsible for carrying them out:

1. Further Education and Higher Education-developing links between industry and education
2. New Entrants training
3. Continuing Professional Development including informal learning initiatives
4. Business Development Support

5. Careers Information, Advice and Guidance.
6. Research

Creative Skillset acknowledge frequently within the report that there are discrepancies in data compared with their census findings, the Annual Business Inquiry (ABI) and the (NESS). The reasons given for this are that the ABI exclude freelancers and photo imaging from their survey and Creative Skillset only measure those people working on the particular day of the census.

There is a wide range of data available on the Audiovisual industries from these sources. This range makes it difficult to collate, aggregate and compare the data, especially as the data is often produced for a specific purpose, using a variety of definitions, classifications and methodologies. During the next phase of the development of the regional skills strategy and action plan, more will be done to integrate the regional data from various sources. (Creative Skillset, 2004, p.1)

Much of the industry information and profile data has been sourced from the SIN questionnaires and data disaggregated from the BOP and Positive Solutions report, 2003, Development of a Skills Matrix for the Creative Industries, East of England Creative Industries: Advice and Analysis final Report and Screen East. It points to a greater need for more diverse data, and questions if this is an accurate view:

Key Questions

- *Is this an accurate picture of the Audiovisual industries in the East of England?*
- *Are there any other important characteristics that need to be understood and inform the development of the Skills Action Plan?*
- *What other changes are taking place that are expected to impact on the development of the industries and the skills that they need? (Creative Skillset, 2004, p.10)*

Space for Creativity; The East of England's Creative and Cultural Industries Development Strategy

The *Space for Creativity* report was produced by David Powell Associates in 2005 on behalf of EEDA, Screen East, Arts Council England (East) and Living East (The cultural consortium for the East of England). The strategy drew together much research from previous reports on the creative industries in the East of England, including the previous 2003 reports *Creative Industries Advice and Analysis – Regional Mapping Study* and the *Skills Matrix for*

the Creative Industries. The report used secondary data and evidence collected from these sources and the organisations involved in the report. The strategy signalled the development of the 'knowledge economy' in the East of England and explored how identified strengths in the creative industries could be built upon and developed.

The creative industries sector is identified and animation is highlighted as an important sub-sectoral specialisation within audiovisual film. It is recognised that the creative industries don't have as high a profile, access to finance or development opportunities across the board as they should and the purpose of the report is to face these challenges.

Key issues highlighted include:

- The sector is very fragmented, with disparate sectors only beginning to see the potential for cross-fertilisation and knowledge transfer
- Limited networking reduces both businesses' and individuals' awareness of activities and opportunities within the region
- Finance is hard to obtain from traditional sources as so many creative businesses have few fixed assets and their intangible assets are difficult to value until they are marketed.

The strategy also points to a poor regional supply chain and a lack of visibility when it comes to the types of companies operating in the region. This lack of a 'joined-up' approach is largely attributed to there being no consistent data collection framework to collect information at a local level. The research has found that many clusters are flourishing but the success of these areas is not moving beyond the immediate areas surrounding particular areas such as Cambridge, Norwich and Hertfordshire which, in turn, have little connection to one another.

Various ideas are set out as solutions, including more effective business networks for the purposes of increasing collaboration within the region, but also highlighting the regional skills base to potential 'buyers' from outside the region. It is suggested that a 'creative knowledge network' be introduced as a showcase and information portal for all creative Industries in the East of England. This, along with practical workshops and events, could

serve as a beacon for the industry. Beyond this shorter term goal it is suggested that greater communication between the public and private sector is required, along with knowledge sharing and more cohesive policy development, further helping creative business get access to funds and investment.

The document is essentially a guide to the proposed strategies that should be implemented in order to ensure that the East of England's creative industries grow and develop in line with the rest of the UK. The research is a base through which partners will be informed and help tally with their own agendas to create a more cohesive approach in this area of research and development.

East of England Collaborative Action Plan for the Audiovisual Industries

This action plan was created by Creative Skillset in July 2005 in order to implement its recommendations on skills needs and development of the audiovisual workforce in the East of England. A strategy was developed for each of Creative Skillset's nations and regions. One particular key issue arising from the preliminary research conducted by Creative Skillset on both the Sector Skills Agreements (SSA) and interim Regional Skills Strategy was that although there was a large amount of data on the audiovisual industries much of this data was widely distributed and not easily comparable:

...especially as the data is often produced for a specific purpose, using a variety of definitions, classifications and methodologies. (Creative Skillset, 2005, p.3)

The methodologies applied are often different making the ability to read, analyse and compare information difficult. Sectoral sample frames and scopes are invariably different as are the definitions of what constitute the sector. There is considerable scope to develop stronger links between Creative Skillset and the work of the Regional Observatories. (Creative Skillset, 2005, p.22)

Part of the action plan was to propose better collaborative methods of collating data in order that a more accurate picture of the region could be recorded in the future. Beyond that point, the action plan works on the recommendations and findings of the interim regional skills strategy data gathered from national sources including the National Employer Survey and the Annual Business Inquiry (ABI) as well as Creative Skillset's own census results for the region. This report sets out what are understood to be the main skills issues

facing the workforce in the East of England as well as potential long term issues which may affect the workforce.

The plan to increase collaboration between all major regional stakeholders, was created with the guidance of Screen East (the regional screen agency for the East of England) and echoes many of the findings set out in the *Space for Creativity (East of England Creative and Cultural Industries Strategy)* by David Powell Associates. It is presented as a holistic view, taking into account a strong regional voice at the same time appreciating that the plan may change, adapt and develop as the industries grow and further research is done into the area.

As with previous reports Creative Skillset characterises the sector in the East as being made up of many small to medium sized businesses with only 7% of the companies in the region employing over 100 people. There is a large proportion of freelancers, but this varies greatly by sector (58% in post production, 22% internet to 17% offline multimedia) whilst 50% of animators in the region are freelance. Broadcast radio is the largest employer (800 people working on the day of census) followed by broadcast TV (710). Animation had 40 employees, post-production 190, Digital special effects 10, web and internet 90, electronic games employing 190 people in total (Creative Skillset Census data). Creative Skillset note that the key strengths of the region are:

Film (including exhibition and distribution), television, animation, computer software development and interactive leisure software. (Creative Skillset, 2005, p.7)

In terms of Animation the plan draws from the now unavailable* Screen East position papers on the local industry quoting:

Animation

Animation is an emerging media for the region based around Norwich. Growth has been stimulated by the FAN (Film Arts Norwich) animation festival, Norwich School of Art's graduate and post-graduate courses in animation and related fields and the presence of companies such as Red Fox Productions. (Creative Skillset, 2005, p.8)

* Screen East Position Papers: Indigenous Production in Film, Television and Animation; Exhibition and Distribution of Film and Moving Image in the East of England; Computer Software Development and Interactive Leisure Software; considered by Screen East to be no longer relevant and will not be passed onto third parties.

This is the same wording as the 2004 Creative Skillset report, p.10, as quoted on p 73 of this Chapter.

Further to this animation is a noted strength in terms of computer software development and interactive leisure software creation with content providers requiring animation services as part of the production chain.

The plan sets out in tabular form national and regional potential collaborative action, issues, partners and timescale to act on the suggested measures through the following topics:

School-based provision

Further and Higher Education

Information, Advice and Guidance for Learning and Work

Introducing Apprenticeships

Support for Small Businesses

Freelancers

Research

Qualifications

Key points in relation to this research refer to the figures stated in relation to further and higher education:

...66% of the workforce are graduates, 24% hold postgraduate qualifications. Over 70% of employers see further and higher education provision as providing the potential to support pre entry skills and knowledge. (Creative Skillset, 2005, p.12)

The plan identifies that there should be greater industry support, collaboration and input to educational courses. This works across the board for all areas of audiovisual industries but computer games accreditation development was seen to be a particularly high priority. It also recommends that FE/HE consider National Occupational Standards when designing courses and that the courses meet sector needs.

Mapping is prioritised in relation to FE/HE courses and collaborations, partnership arrangements between education and industry, and the potential for apprenticeships and sector business growth schemes, and CPD provision to plug skills gaps. The plan states that closer collaboration amongst organisations is essential to allow for less duplication of

results. A framework in this area is also recommended allowing for deeper analysis of findings and results, should the data be collected by one set means through the encouragement of the use of industry's approved Labour Market Intelligence research programmes.

The intention of this report and action plan is to set out shared and achievable objectives for regional agencies to collaborate with in order to achieve the established goals. Much of the requirement is an improvement in the quantification of the following categories:

- Education
- Career progression routes
- Size
- Nature and definition of industries

Many of the goals are highly valid and based on the best data available in 2005. It is not explained how the scheme will be monitored and when the next review will be, in order to decide if the plan will need to be adapted and if any of the key agencies have been successful in their tactics.

The Creative Industries in Norfolk

This document was created by Richard Cox on his appointment as Director of Creative Industries for Norfolk and was published in January 2004. It sets out the aims and vision for Norfolk's creative industries for 2003-2005, contextualising previous research on the East of England to a local point of view in terms of Norfolk and Norwich. Part of Cox's task on appointment was to scope the volume, value and assess the importance of the creative industries in this area, along with the identification of issues and recommendations as draft actions many of which manifest themselves through this report. This exercise consisted of a very lengthy consultation process comprising a series of interviews and discussions with representatives of more than 100 companies working in the creative industries in Norfolk.

Cox's report defines the creative industries in relation to the DCMS and its previous sub classifications detailing and contextualising the relevant facts and figures for the whole of the UK, from the most up-to-date figures and data at the time from the *Creative Industries Mapping document* produced by DCMS in 2001. Cox notes 8% of the UK total workforce are

in creative industries located in the East of England and generate just over 10% of the total UK exports in this area.

Looking at the East of England's workforce, 5.3% of the total work in creative occupations, a notable percentage but with scope to grow. Freelancers account for a third and 16% have self-employed or freelancers working within their company. The average company size in the East of England is just over four employees. Several prominent clusters are defined as important facilitators in the development of creative industries in surrounding areas:

...Cambridge with regard to software and ICT-related activities, Norwich in the field of animation, and Adastral Park near Ipswich for broadband-related activities. (Cox, 2004, p.7)

Computer games, software and electronic publishing is the largest employer and the greatest sector specialism, exhibiting a strong relationship with national and international business and interaction with inward investors through the creation of products and services which are part of a larger, global supply chain. Cambridge is seen to be a key asset in this sector and potentially an important driver in the development of other surrounding industries through the championing of the convergence of technology and content production.

The region faces several issues in relation to its proximity to London, in a positive light it offers a better quality of life and cheaper overheads, but transport links are considered to be slow and inadequate the further away from the capital.

Broadcast television is centred on Norwich and this faces challenges which are beyond regional control; however it is noted as a good example of cluster behaviour, with smaller companies and education developing in order to supply specialist support to the larger broadcast industry:

...with a mix of large and small firms and substantive university links, the creative industries already behave as an industry cluster and there is potential to develop these relationships further. (Cox, 2004, p. 10)

In order to develop all creative sectors, Cox suggests that there should be particular sectors targeted in the first wave of this research and development work, these sectors are:

Advertising
Web Design
Animation
Public Relations and Marketing
Broadcast Television
Film and TV Production

Issues are highlighted facing each of these sectors, under the heading of animation Cox notes:

Animation

The animation companies I have encountered are small enterprises, with potential to grow.

A high level of computer skills are required to produce the work.

Some of the animation businesses have seen better days and need, it would appear, to have a fresh supply of ideas and scriptwriters.

The FAN Festival attracts international entrants and is valuable for putting Norwich on the map and this profile helps local business to some extent.

Animation companies seem not to know of each other or to be working with each other.

Animation companies are willing to co-operate and would welcome involvement with the educational institutions working in animation in Norwich. (Cox, 2004, p.13)

It is suggested that each of the above sectors form their own group through which collaborative alliances between groups could be developed. Larger alliances and cross fertilisation could also contribute to the development of both Norfolk and Norwich's profile to the rest of the UK. Better marketing and a showcase for work both physical and virtual in nature, as well as targeted training and collaboration with educational institutions is also cited as being integral to the development of Norfolk's Creative Industries.

This report is unique in that it gives focus beyond the East of England through to a more local perspective. However, there is a lack of detail on where the data has come from in terms of references and a lack of clarity when referring to East of England, Norfolk and Norwich. The sample size is good, but with the absence of any transcriptions or interview structure it is unknown how the comments were obtained and what the focus of the interviews were. The interviewees are

detailed but there is no reference to the weight of the sample in terms of sub-sectoral breakdown.

Summary of Key Issues (Section Three)

- **Awareness of opportunities**

Within this third section of the literature review, the understanding of data in relation to Animation and the East of England is considered, along with data collection processes and frameworks. Key findings appear to point towards a UK-wide convergence and consolidation of digital industries, including varying forms of animation-related industries. However, there appears to be a much lower awareness amongst the regional industries of opportunities for collaboration, networks and a cohesive supply chain.

- **Lack of permanent jobs**

From research findings so far, most creative businesses are small with an average of 4 employees (Cox, 2004), also according to Cox, BOP and Creative Skillset there is a large proportion of freelancers because of the lack of permanent jobs available. Cox (2004) also cites the decline of regional television production to be a contributing factor in the lower growth of the audiovisual and related industries, but this is beyond the region's control.

- **Migration of talent**

DTZ Pineda (2002), Cox (2004) and EEDA et al (2005) note that the region's proximity to London can be positive in that there is good access to the region, living costs and the quality of life are vastly superior to the capital however, because of the geographical distance from London and the opportunities available, there is much migration of talent away from the region. All of the reports refer to specific clusters supporting relative sectorial specialist skills and facilities; these are Cambridge for computer games, software and electronic publishing, Norwich for animation and television and Hertfordshire for film.

- **A need to develop the animation sector**

Both Creative Skillset reports (Nov 2004 and July 2005), BOP (2003) and Cox (January 2004) identify animation as a sector for targeted development because of its value to the regional audiovisual economy. Whilst some suggestions are made around skills gaps and development needs, including a lack of specific support for specific subsectors such as animation and a need for stronger entry routes and better links between education and industry. BOP (2003) identify that the quality of the data for the region is mainly anecdotal

highlighting that much training and support is developed without carefully defined research to meet the need.

- **Lack of up-to-date data**

This section serves to identify the critical lack of up-to-date data (evaluation, aggregation and comparison) for sub sectors or regions hindering any targeted strategy design or policy creation. Much of the data used within the reports examined in this section appears to be from the same source of the now out-dated DTZ Pleda (2002) report; this information is continually reused without any review or questioning of its validity. Policy and strategies have been developed based on data and evidence that has been identified as weak or in some cases out of date. Where recommendations are made for development, strategies don't appear to be monitored and there is little concrete evidence of the accountability of some agencies through tangible evidence or follow-up on the progress and development of recommendations made within these reports.

This literature review points to the requirement for a more reliable data collection framework for subsectors such as animation at a regional and local level. Other important reports include the DCMS *Creative Economy Programme* (August 2006) and further research on the DCMS *DET* (2004) which partially address this issue of better regional creative industries sub-sectoral data, review and frameworks. These are explored in Chapter Three.

Conceptual Framework

In Chapter 1 key relevant literature has been reviewed within a theoretical framework consisting of three areas; Studies of the UK animation industry, relevant data collection models and Regional (East of England) Animation related studies. The literature referenced drew attention to historical studies of the sector, pinpointed key discrepancies in data available, highlighting potential methods of measurement. Kumar (2005, p37) describes drawing together theories and issues within which the study is embedded. From this, an initial conceptual framework has been developed, consisting of the following aspects of enquiry:

- How information on the animation industry is collected and disaggregated- models from the period of review.
- Commonalities that are endemic to the misreading of the situation with top-level agencies.
- Issues with available data, methodologies and reports at Government and relevant organisational level.
- Critical evaluation and provision of recommendations for development.
- Initial development of a framework for a potential new model for data collection.

These points will be revisited throughout the process of enquiry to ensure they are correctly balanced in order to avoid any potential initial bias.

From developing the Conceptual Framework based on the literature review four sharper and more insightful questions about the topic have emerged. These allow for the exploration of the concepts highlighted above:

Key research questions:

- How can the contemporary UK animation industry be defined?
- What is the framework for development- where is it located in terms of existing research methodologies?
- How can I create a model to better represent animation related activities at a local level?
- How can the value of animation be more clearly understood using the East of England as a test area, to provide enhanced and informed support for the Region's economy?

These research questions will act as a structure for the remainder of the research. Each question will relate to a specific area of the research process and will provide a framework for the design of the chapter content.

Chapter 2

A Theoretical Definition of Animation for Industry

Introduction

A detailed analysis of a definition of animation in relation to theoretical and industrial classifications will be embarked upon within this chapter. Owing to the myriad of definitions available for data collection, it was considered essential that a more up-to-date understanding was created in order to clarify and focus the study. This part of the research has further been undertaken to create an understanding of the relationship between the industry sector, government departments and higher education. Consideration is also placed on the identification of the primary creators of the market, who defines policy relating to the operation of the animation industry and educational/training standards in animation Higher Education. This chapter is focused on the first research question;

- How can the contemporary UK animation industry be defined

The findings in this chapter have been built on primary research, conducted over a period of three months between February and April 2008, consisting of telephone interviews conducted with key government agencies and individuals including Creative Skillset, PACT and DCMS. The identification of practitioners has taken much refinement to allow for a cross section of the industry to be represented along with varying different sized companies. Higher Education Animation course leaders have also been contacted from identified hubs around the UK, along with other selected animation institutions identified through collation of course information from industry directories, Creative Skillset and conversation with colleagues. Twenty institutions were contacted with a similar set of questions and answers have been received both orally by means of face-to-face interviews, telephone, and textually via email.

I propose to develop a working definition of animation to structure parameters for this thesis. In order to build a framework for recommendations I will identify issues and debates about the applied meaning of the term 'animation' in respect of industry classification.

My literature review research evidences that the traditional children's TV industrial sub-sector of animation production and film animation in the UK is deteriorating. It was clear from my analysis that government-recognised definitions used in the collection of data are

outdated and do not adequately identify animation as a vital component of other audio-visual products. This impacts on the government's view of the sector. Animation has a symbiotic relationship with many feeder industries. The sub-sector is a lot larger than is perceived by relevant government agencies and organisations. Through this research I will seek to consolidate the concept of animation in terms of an industrial definition for classification and data collection.

I want to explore the nature of animation, the possibilities contained within the animated image; to establish, after Bazin, something like an ontology of the animated image. Yet, I will exert no effort to define "animation" (let alone "experimental animation"). I run the risk that my refusal is perverse rather than productive. Still, I have some good company. For instance, Lev Manovich's highly influential redefinition of animation is entirely circular, as we'll see below. In fact, some of the most interesting writers on animation provide, at best, partial or inconsistent definitions of animation. Instead, they use animation, or the difference between animation and live-action, to develop particular concepts: Sean Cubitt's vector, Vilem Flusser's imaginal thought, Jean-Francois Lyotard and D. N. Rodowick's figural. It is through such concepts that it becomes possible to claim that animation is now and will continue in becoming the driving force of new media and the moving image: the sharpest point. (Reinke, 2005 p.9/10)

I do not seek to find an answer to what might be assumed by many practitioners and theorists to be an unanswerable question; how can we define the term 'animation'? Through the analysis of texts and interviews with industry practitioners and academics, I shall give clarity to this study by defining what is being considered, what has been excluded, and potential links to other subjects, theories and themes. The term 'animation' to many audiences will immediately conjure up a representation of Disney's infantilism as noted by Griffin in the opening to his discussion 'Concrete Animation' (March 2007). During a three day symposium entitled *Pervasive Animation* held at the Tate Modern in March 2007, Griffin's first question to the audience was what does animation represent, how can we define it?

Animation might be considered to be a combination of activities and, as Pilling describes the term, is still very much grounded in a stereotypical void:

If 'animation' tends to suggest 'cartoons for kiddies' this is clearly due, in great part, to Disney. Following Disney's audacious gamble on the animated feature film, animation became defined by the Disney model - that of the cartoon as child/ family entertainment, and as such, a no-go

area for most film critics and theorists other than as material for ideological/sociological analysis. (Pilling, 1997, p..xi)

It is argued that this does not merely apply to the non-practitioner based audience, but also to those attempting to measure the animation industries as a sub sector of the creative industries and economy.

A review of the key theoretical arguments in relation to the definition of 'Animation' will be followed by thematic industrial clarification. Arguments will be explored through comments from industry practitioners and organisations. Views from industrial and philosophical perspectives will be gradually focussed to achieve a hypothesis or proposition to be developed through this thesis. The chapter will also consider the potential necessity of a definition from the point of view of higher education providers. This may focus student learning in addition to contextualising aims and objectives for a course curriculum and ultimate engagement with industry.

Subtractivist versus Constructivist

Professor Ian Christie (whilst speaking at the BFI in London in 2005) highlighted that animation is a constructivist practice as opposed to live action where the narrative is created from a subtractive or reductive process. Griffin similarly concurs with this point of view comparing cinema to animation; 'Cinema is a document whereas animation is a construction the viewer becomes the engine of recreation, these are created moments that have never been seen.' (Griffin, 03/03/07, Pervasive Animation)

Wells talks further about this 'process':

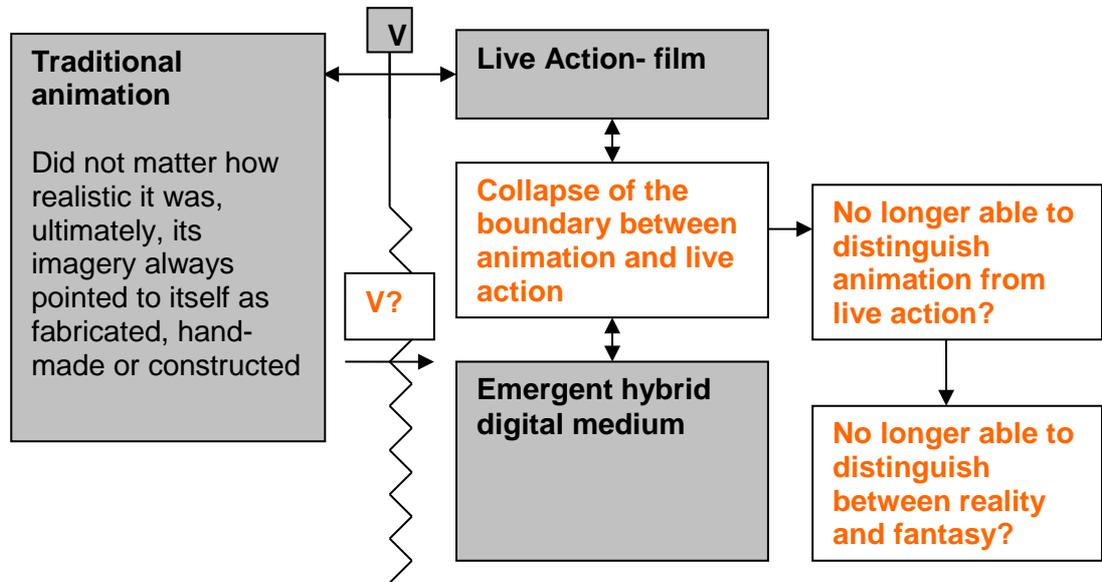
The animator can create 'action' which is outside the vocabulary offered by its mainstream counterpart. The potential reorientation of the physical and material environment under these terms and conditions also re-configures the ways in which the psychological, emotional and physical terrain may be explored and expressed. (Wells, 2002, P6)

The audience is happy to accept the implications and where required invest themselves in interpretation of meanings in the form of animation. Pummell (1983) notes when talking about the Disney studio's prohibition of graphic reality within their animation work:

The fact that animation developed in this tradition of popular humour allows it to be both accessible and to question and explore the divisions which make up our values and categories of meaning. And it allows a focus on the transformation of subversion as a process rather than an opposite state in a fixed opposition to sanity, and so allows a filmmaker to avoid simplifying the flux of meanings and their strategic displacement into a fixed duality; sanity/insanity, animate/ inanimate.
(Pummell, 1983, p.8)

Audiences are considered willing to accept challenging concepts as long as the dividing line between animation and live action is visible. This echoes the core of the issue with defining animation on an industrial level; it seems that it is essential that there is a clear dividing line, even for some who work in the industry, particularly commissioners and broadcasters; it must be clearly labelled. As Robin Lyons (Managing Director for Calon) commented during my telephone interview, broadcasters pay much less in terms of budget as animation is instantly defined as different from other media. It has quite different concerns and is a special case in relation to agreements and buyout (Interview with the author, 05/03/08).

With the advancement of new technology, and as Langer (2001) suggests, we are at a point where some forms of animation are so realistic this might constitute a new hybrid medium formed by the 'collapse of the boundary between animation and live action.' Andrew Darley further comments that there appears to be a fear within some theorists that this will ultimately lead to a reduction in the differences between Animation and Live Action-film.



2.1: Traditional animation versus Live Action? Diagram devised from writings on Langer by Darley (2007)

The diagram above sets out the main principles of Langer’s theory and concerns pertaining to the loss of this ‘dividing line’ causing indistinguishability between the two. When identifying this Darley also points to Langer’s reservations that in the flattening of the differences between animation and live action our ability as an audience to distinguish between reality and fantasy will be lost, this is perhaps relating to the concept of Jean Baudrillard’s ‘Simulacra’ (Baudrillard, 1988, p166-184) where the real object, in this case the live action recording of a situation, has been superseded by the signs of its existence through a synthetic animated representation. But, as Darley argues, this is an oversimplification on Langer’s part in the search for further comparability in the form of binary oppositions. Issues surrounding this form of theoretical deconstruction will be considered later in this chapter. Darley argues that:

The point is that distinguishing between reality and fantasy within mediation depends upon a host of cues and clues, many of which have little to do with the medium per se. Certainly, cinematography requires that real people (actors) be present in real profilmic space when scenes are being set up and shot, but isn’t what those scenes look like, how they are shot and what they are about as important when considerations of (relation to) reality are the issue? (Darley, 2007, p.69-70)

As Darley states and Christie concurs with, film is a subtractive form (in that the actors are real but the director chooses what to show the audience from the actor’s performance; all

of which is usually fictional, if almost certainly manufactured in some way). Raw footage is often edited and sections discarded in order that an intended message or meaning becomes clear and apparent to the viewer. Whilst animation is a constructive form, the creator generally decides on all content down to the very last detail to create individual instances that, when placed in a sequence, generates an illusion of movement. As Pummell notes, in terms of 2D drawn animation this boundary issue is not a problem to the viewer:

The Formal Paradox of Animation

Animation exists in two states. Animation as a projected film and animation as a sequence of individual drawings.

The question is how to foreground and question this formal division, so that the form 'animation' can only be located as a relationship between the two, a formal proposition that confounds the desire for fixed and exact essential meaning.

Rough Animation as Projected Film

As film animation is a medium of illusion, drawn characters dance before your eyes. This in itself has an element of the clown. The more so if it's materiality as an illusion, a virtuoses trick is preserved to force the viewer to simultaneously become involved in what is represented and be distanced by admiration of the trick.

(Pummell, 1983, p.10)

Darley adds weight to Pummell's position by explaining that reality and fantasy are distinguished by the content and not so much the medium. John Wagland (an examiner for the British Board of Film Classification) explains that moral issues begin to take hold when an audience cannot distinguish between the real and the unreal but this (also noted by Christie) animation has gone into the previously untouchable domains because it can get away with more than film as animation becomes more 'real' will this be an issue for viewers?

...well it comes down to context as always but as a general rule, we treat animation as we would live action. Often however, cartoons are fantastical and with fantasy a mitigating factor in relation to violence for example, it can perhaps seem like animation is a medium where one might be able to get away with more. A good example of what we actually do though can be found in our approach to Hentai (Japanese animated pornography), where we make the same cuts on OPA grounds as we do for real porn. We do also pay special regard to these type of works in relation to their potential use as tools for the inappropriate grooming of youngsters, which perhaps answers your point about infantilism. Our approach to sexual violence would be the same. Works that contravene our guidelines and policy on the issue are going to be cut whether they are animated or not. (Interview with the author, 27/02/08)*

*OPA-Obscene Publications Acts 1959 &1964

John Wagland agrees with Darley that this will not be an issue as it always comes down to circumstance. The concern here is the ability to identify animation in all its many forms; within this chapter I am not intending to investigate the moral issues of animation and its content or contextualisation, but the relevant discourse and increased prevalence of the sector within many forms of entertainment.

In an essay (www.animateonline.org/editorial/2001/04/the-manipulated-image) important to animate! pioneering independent producer and animate! Co-instigator Keith Griffiths voices core concerns, observing that now every Hollywood blockbuster passes, in its entirety, through a digital gateway between its filming and its release print. So what happens in front of the camera is merely pixel-grist for the digital 'mill'. He argues that the possibility to digitally manipulate every single frame of live action film returns the form to the realm of animation. Therefore, the computer's intervention in 'post-production' can now be liberated in pursuit of 'hallucinations of reality'. (Evans, 2007, p103)

As we continue to develop improved digital technology audience expectations grow and increased pressure is placed on production levels to meet consumer demands. Wells, when talking about how animation is created and specifically movement (a key element) in animation that is created differently and with greater freedom from that of live-action film comments:

The process involved in making an animated film is dependent upon the technique involved; the 'studio' undertaking the film; the budgetary constraints and the broadcast context. While process has common elements in every approach, there are significant differences. (Wells, 2002, p15)

It is clear that there is a desire for some form of classification of the term animation in a theoretical sense. Theorists appear to struggle as the boundaries blur between traditional animation, such as 2D drawn and stop-motion, and the newer digital manipulation and creation processes (CGI).

It may be true that the boundaries between animation and live-action-film are decreasing, that is if one considers them to oppose one another. Processes are changing and developing for several reasons including technological innovations, budgetary constraints, higher and greater demands for content and multiplatform approaches. Until now I have

used the terms and phrases 'live action', 'movie', 'film' and 'cinema', but the term animation is spreading far beyond these so-called counterparts.

The Debate; Film versus Animation

ASIFA – the Association of International Film Animation – as Denslow (1997, p2) points out contains the word 'film' in its title. This is considered to have many associations with analogue based processes and technical restrictions in relation to the animated form. The term 'film' seems to operate at odds with the term 'animation'. Many theorists including Langer, Wells and Manovich, appear to be moving towards an understanding of animation – by defining what it is not, forming structuralist theories from binary oppositional definitions (Saussure, 1974).

Steve Reinke uses the term 'Live Action' or 'cinema' rather than 'film' in relation to the notion of describing animation. He is not attempting to define 'animation' but to consider the nature of what animation is within the context of other relative counterparts. Within his essay, *The World is a Cartoon: Stray Notes on Animation* (2005), he considers the term digital cinema to be a 'particular case of animation that uses live-action footage as one of its many elements.' (p.11) This is based on Manovich's theorem:

*digital film = live action material + painting + image
processing + compositing + 2-D computer animation + 3-D
computer animation
(LNM, 2001, p301)*

This posits that all digital film is equal to the addition of some, if not all, of the elements included above. This is a theory that can develop and change and is a perspective at a particular moment in time in respect of technological capacities. We can consider this as the point where animation merges with differing medias, and where there is a need for a malleable theorem that has elements that can respond to the changing technological topography. Whilst Manovich's work propagates around the theories of the influence of technologies on animation, Reinke sees animation to operate outside of these parameters as a changeless phenomenon:

There are two trajectories here: cinema and animation. Cinema has three stages: early or pro-cinema, which is allied to animation; the cinema, in which cartoons are ignored and denigrated; and the digital cinema, which is, literally animation. While cinema develops — has a

history — animation remains essentially immutable. (Reinke, 2005, p.11-12)

For Reinke his critique of Manovich is that cinema has become one particular case of animation. Reinke places animation outside any historical circumstances and it can therefore be incorporated within any other sub-sector. Denslow also warns of this discursivity of animation in relation to media convergence:

With the future digitalisation of all media, all forms of production will perhaps be as much animation as anything else. The makers and studiers of live action film will face similar definitional dilemmas. On page nine of the catalogue titled Motion Pictures from the Library of Congress Paper Print Collection 1894-1912 by Kemp R. Niver, UC Press, 1967, within the category of comedy, there is a short description of the film Animated Picture Studio, 1903, which notes: 'Before motion pictures got the name as such, they were called "animated" pictures.' We might once realise this condition again. (Denslow, 1997, p.4)

Wells notes when making similar observations on the convergence of the two media:

Academics have even claimed that we near the post-photographic era, and that animation, far from being the long marginised second cousin of live action, is now the pre-requisite of cinema itself. (Wells, November 2006, p.26)

It seems that animation is an aspect that is considered in relation to many other sub sectors of the audiovisual industries therefore flattening the term and reducing its value.

For those researching the term 'animation', or as Reinke concisely points out that he is exploring the notion of what animation is within the context of relative counterparts; there is a danger that the term could become too broad and ultimately diluted to a point of little value to any identification for classification or study. Alternatively, Darley offers the option that whilst this may be the case, traditionally animation and live-action films have cohesive elements, they do not both need to be studied at the same time:

Focusing on the distinctive or specific is extremely important and may produce important insights and knowledge, but then so too may attention paid to what I'm terming the contextual or shared aspects. (Darley, 2007, p.65)

Darley is hinting towards the extent to which Manovich and other theorists in the field are flattening the meaning of the term animation. Those seeking to understand animation can over compensate its worth because it has been long undervalued. This is apparent from

earlier arguments and associations with audience perception and expectations of animation as infantile and frivolous, also pertaining to another associated term ‘cartoon’:

Cartoon is distinctive but it is not the only kind and form of animation that exists and is done – nor should it be. Indeed, cartoon animation itself is not of one type or style, it is, rather, extremely multifarious in this sense. (Darley, 2007, p.66)

As Darley considers that the terms ‘cartoon’ and ‘animation’ are commonly confused. The correct term would be an animated cartoon and one that is most often used in reference to children’s animated entertainment, extending from the language of ‘the comic strip to create a vocabulary for the animated short’ (Wells, 1998, p.17).

Many ‘animated cartoons’ have a ‘comic logic’ (Ibid p.18) that relates to the wit exhibited in comic strip humour featuring similar characters such as super heroes or anthropomorphised animals and themes and jokes specific to a certain kind of ‘vocabulary that the cartoon constantly employed’ (Ibid, p134).

Darley notes that the ‘animated cartoon’ is one specific form of animation and that animation varies broadly in type and style according to content, as part of its recognised diversity. It may therefore be necessary to seek clarity regarding both the term ‘animation’ and the classification of its activities.

Distinguishing Features

Considering Carel’s essay *Animation = A Multiplication of Artforms* (2007), one definition that characterises animation across all areas is the frame-by-frame process. This hypothesis helps to locate a common factor amongst the vast variety produced:

Traditional animation tends to imply that it is film that tells a story in moving drawings, is usually produced on cels and contains what has been called ‘personality animation’ with which the narrative’s protagonists are imbued. And, while much model and plasterciene animation is similarly narrative-driven and contains personality animation, the way it is filmed approximates far more closely to live action cinema than it does to any other form of animation. Then again, some animation is graphic art in motion; ranging from caricature to abstraction. Abstract animation might have more in common with formal experimentation in modern art and avant-garde film than with a gag or story-oriented animation. Heterogeneously

found or constructed materials are used to radically different effect by filmmakers such as Svankmajer and the Brothers Quay... The only consistent common factor to these disparate films is the fact they are all shot frame by frame. (Pilling, 1997, p.xiii)

In discussion with Saint John Walker (Anglia Ruskin University, interview with author, 05/03/07) he expressed the notion that any definition needs to account for the fact that the frame as a discrete unit is obsolete. More appropriately it needs to be replaced with a unit of light, namely the pixel because in the digital world there is no need for frames beyond a symbolic concept.

Denslow (1997) further asks that for something to be considered animation 'is the determining factor actually the existence of separate frames?' Denslow also points out that when a computer is dealing with separate images internally, that it is not observable to the creator therefore is it, or can this still be animation? In HDV (high-definition video) images are essentially composed of 'difference'- there are only two real frames a second - the rest is merely difference/compression. In considering processes Denslow also highlights the association of time with the production of animation:

If it is easy to create quickly, will it be considered animation, or some-thing else, such as electronic puppetry? Another determining factor is often the time needed to create it. How many animated films are touted as the product of many years of dedicated labour? (Denslow, 1997, p.4)

Most definitions include some reference to process which many animators (from varying disciplines) would agree to be 'obsessive, repetitive and socially isolated behaviour' (Denslow, 1997, p.4). Suzie Hanna (Subject Leader Animation, Norwich School of Art and Design, interview with author, 3/03/08) commented on the trend in compositing techniques becoming quite prominent in animation, and a traditional view of that may be seeing it as a poor relation.

As one industry interviewee commented the animation industry is too small in this country and does not show up on the government radar. When challenged that this could be because it is not recognised properly the interviewee responded that it was not necessarily to do with that, but thinking about the special effects industry and digital post animation it is a service industry and there is not as much value associated with this area as there is with IP value in children's film and series production. Suzie Hanna further explained that the less

traditional areas can be considered to be for example not really animated, just 'moving images'.

Also what used to be called Special Effects is now often referred to as Animated Effects as the 'frame-by-frame' technology has become so sophisticated. A definition must reflect the changing conditions of production and reception (Langer, 2002, p.1-2) and to remain fresh and current it cannot be prescriptive. Both Langer and Denslow note that there is a conflict between what we have traditionally perceived to be animation and what it has and will become, how it is received and its uses, these factors all relate to technological developments. Gene Deitch (2001) believes that a definition of animation can go beyond the constraints of technology and create something that is far outside a technical definition:

If we speak of animation in its broadest sense, it derives from the Latin word, anima, and "the breath of life." I would use the term "cinematic animation" for what we do. For want of a better term, it delineates our stop-motion work. For precision, I have omitted reference to any particular technique, medium or technology. Here is my definition:

"Cinematic Animation: The recording of individually created phases of imagined action in such a way as to achieve the illusion of motion when shown at a constant, predetermined rate, exceeding that of human persistence of vision." (Deitch, 2001)

Deitch believes it is important for 'animators' to realise the breadth of their craft through some form of broad definition that allows the artist scope within their activities; it does not constrain the term animation only to the realm of the technical. Many of those working in the industry interviewed agreed that a more diverse term is preferable. Hedley Griffin (Hedley Griffin Films, interview with Author, 05/03/08) and Stu Aitken (AXISanimation, interview with author, 06/03/08) felt that animation should be expressed in as many different ways as possible to explore the realms of creativity.

Aitken further comments that animation is simply any method of making things appear to move artificially (i.e. without actually filming things moving) and can cover a myriad and indefinable list of techniques. Deitch also ties together Pummell's implication of animation being a trick and the audience understanding that notion with Darley's argument against Denslow on the concept of bringing life to an inanimate object:

The best and most poetic description I know of what animation is all about was beautifully stated by Steven Mill Hauser in his book Little Kingdoms (Vintage Books – Random House, page 107):

“... [an] immobile world of inanimate drawings that had been granted the secret of motion, [a] death-world with its hidden gift of life. But that life was a deeply ambiguous life, a conjurer's trick, a crafty illusion based on an accidental property of the retina, which retained an image for a fraction of a second after the image was no longer present. On this frail fact was erected the entire structure of the cinema, that colossal confidence game. (Deitch, 2001)

Excluding the reference to drawing the quote conjures an idea of fabricating something that exists in one's imagination through varying methods which work based on a human's biological ability to read the content as moving. Carels (2007, p14) points out in his essay *Animation+ A Multiplication of Artforms?* That in Russia the term for animation is 'multiplikatsija'. He notes that animation is a more 'spiritually resonant' term than 'multiplikatsija' which suggests:

...the physiological effect that each film produces, which animation makes us more aware of: the projection of a multiplication of impressions on our retina, and thus our mind. (Carels, 2007, p14)

Deitch further comments on the 'illusory nature' of animation:

The animated cartoon was a far more honest expression of the cinematic illusion than the so-called realistic (live-action) film, because the cartoon revealed in its own illusory nature, exulted in the impossible – indeed it claimed the impossible as its own, exalted it as its own highest end, found in impossibility, in the negation of the actual, its profoundest reason for being.

The animated cartoon was nothing but the poetry of the impossible-- therein lay its exhilaration and its secret melancholy. For this willful violation of the actual, while it was an intoxicating release from the constriction of things, was at the same time nothing but a delusion, an attempt to outwit mortality. As such it was doomed to failure. And yet it was desperately important to smash through the constriction of the actual, to unhinge the universe and let the impossible stream in, because otherwise - well otherwise, the world was nothing but an editorial cartoon." (Deitch, 2001)

It is possible that Deitch takes his article too far into the more traditional view of 'cartoon' animation, particularly in the last two paragraphs of the quote above. Langer comments on this within his essay *The End of Animation History*, noting that most definitions seek to prove live-action is "not-animation" and animation is "not-live-action". Langer seeks to

underline that there are so called 'grey areas' where the two overlap. This is not a re-visiting of the argument that everything is or indeed should be branded as animation – live action or not. Langer's major misgiving on Deitch's theories is that certain techniques such as puppetry are dismissed, therefore discarding any discursive tendencies animation may have:

Deitch claims that forms of real-time animation "can never achieve the sharpness, precision and exaggeration of frame-by-frame animation. Likewise, frame-by-frame animation is weakest when it tries to imitate real life. ...Best the twain never meet." (Langer, 2002, p. 2)

Deitch's major downfall in this article is that he begins by clearly noting he will go beyond a technical definition with his concept of animation; which he does initially. But his own bias begins to appear through his later referencing in the article. However if those biases can be ignored his final quote has some strong resonance:

I will not comment on the various styles and superficial modes and fads of animation. My point is that the basic medium is absolutely unlimited, and can contain anyone's personal vision. Animation technology is analogous to a painter's blank canvas - you can lay anything onto it, shit or shine. (Deitch, 2001)

Deitch's point about animation being limitless or more 'sophisticated and flexible' than live action as Darley (2007, p.xxii) cites from Wells when talking about the degree of control allowed by animation because of its so-called 'hand-made' quality.

As considered earlier in this chapter binary oppositions are used by many of the theorists discussed in the exploration and deconstruction of the term animation. Hierarchical structures appear to be put in place dependent on the value placed on either side of the pair; live action or animation. To this extent it must be considered that animation is not the opposite to live action. There are some differences but also many similarities and there exist a multitude of juxtapositional formations of the two as with other relative art forms. This is dependent on the technology and outcome required.

As Reinke also hints, animation is a changeless faction but he still can't resist comparing animation to cinema's historical context. Darley points out that the exploration of each situation should to a certain extent be explored on a case-by-case basis.

Multiplicity of Constitution

Animation operates on two levels, the aesthetic and the psychological and can be applied as both part of the process and content dependent on the creators and their intentions. Carels notes that perhaps it is the origins of classification that is the problem. He poses the following questions: Is it an issue with classification which is the problem, is the term animation too limiting? What is animation's unique selling point and does it require radical new thinking in replacing the term that contains the surrounding elements?

One could abandon the term animation and look for another, more encompassing one, or one could be as purist as possible and try to single out, so to speak, the unique selling proposition of the particular artform. As we have seen, 'art' can be understood as many things- on a material, technical and aesthetic level. Although one can disagree on the purely artistic results of his many experiments, fundamentally McLaren's philosophy behind the machine still holds: that animation is above all the art of the in-between, of the interval, of the beholder, of the mental movement, the stream of consciousness, the free flow of associations. It is the art of reading between the lines. It is not about the art that is on the image, but about the art that emerges between the images. A multiplication of impressions on the mind. (Carels, 2007, p 22)

The separation of the aesthetic and physiological is a complex task and may not be possible; as Darley states each situation is different and animation can manifest itself in many diverse forms contained within an overall structure. The core is the 'term' animation, by simply abandoning this it would leave no better situation of definition.

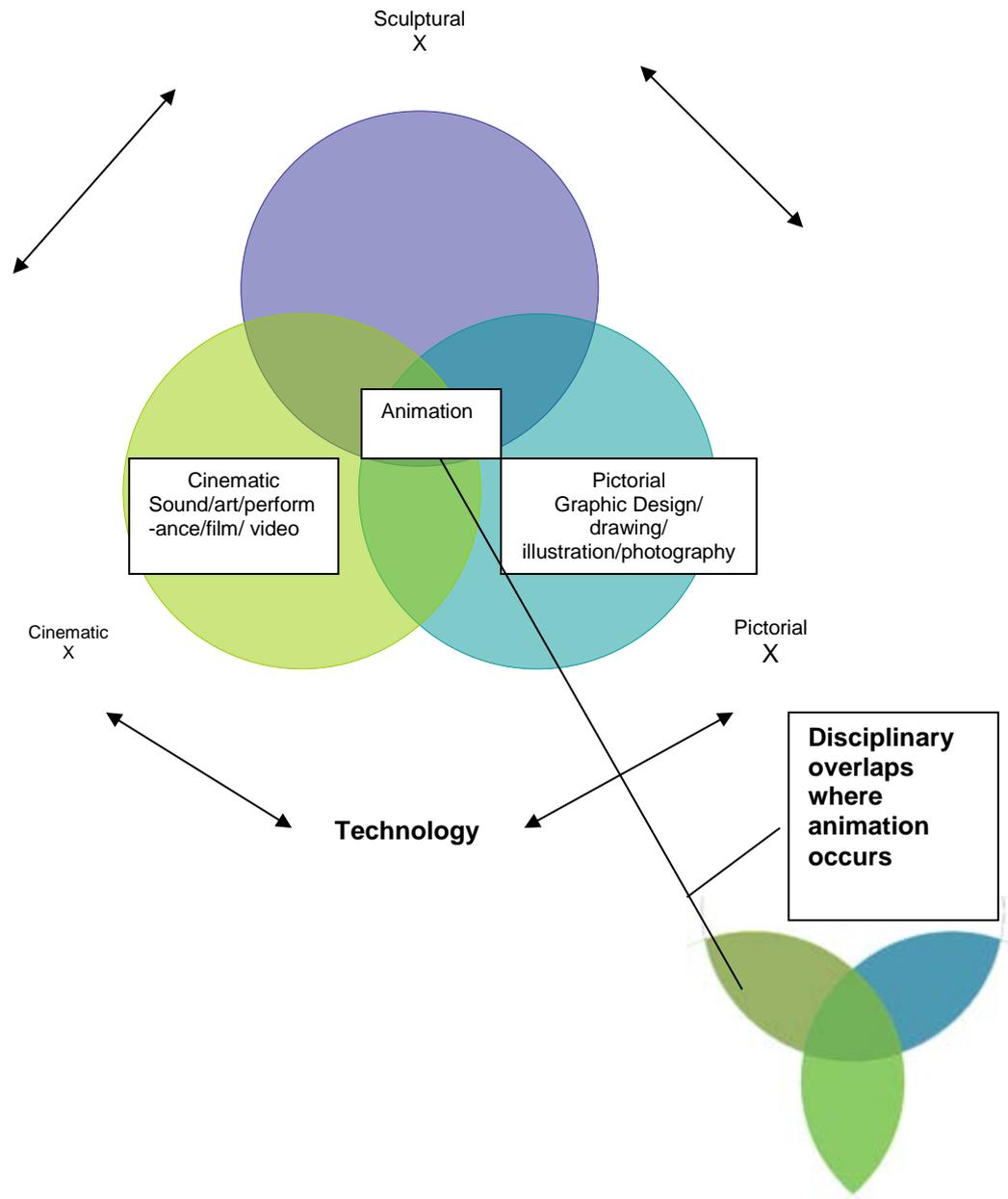
I believe it is more important to look for multiplicity in the constitution. As Wittgenstein considered in his work *Philosophical Investigations* (1953/2001); how one might come up with a definition for the word "game", his crucial point being that it seems impossible to actually reach a common definition, there are links to family resemblances but no total common thread. Wittgenstein argues that it is not necessary because without a definition the word is still used effectively and in context. Wittgenstein also discards any notions of classification through ostensibly identifying a definition through pointing out examples and how these are perceived by individual viewers.

Paul Ward talks at length within his essay on *Animation Studies, Disciplinary and Discursivity*. That the 'discursive' and 'recursive' nature of animation can be viewed and theorised by the given different persuasions of who studies it and for what reason;

...a "discursive" field could be seen as positive in the sense that it is engaging with "other" areas, but this could lead to some dilution or confusion (a loss of specificity). On the other hand a "recursive" field can be thought of as one that reflects upon itself, maintains some sense of itself as itself, and this can lead to a highly-developed idea of the field, but can also tend towards divorcing the knowledge from its social context/s, and developing the area in the sense of "keeping up with new developments" (which, by definition, means "looking outside of" the knowledge area itself). (Ward, 2003, p10)

Within this analysis Ward is referring to the need for those who study animation to both acknowledge and accept that a subject cannot function on its own. Due to animation being multifarious in its nature there must be some discourse and an overlap between relative areas without it being entirely absorbed into another subject. It is important that the term is not flattened to the point where it becomes too diluted in relation to other sub-sectors or overlooked in connection to other subject areas.

McCall (2007) initially sets out that animation is somewhere in-between drawing, cinema and sculpture. He ignores the possibility that it may or may not be a frame-by-frame process, but he acknowledges that it is a constructivist procedure. I have developed his initial ideas into a venn diagram to explain the overlap that occurs when considering the placement of the subject animation:



2.2: The Subject Placement of Animation. Diagram developed from Anthony McCall's seminar 'Then and Now' (Pervasive Animation, March 2007)

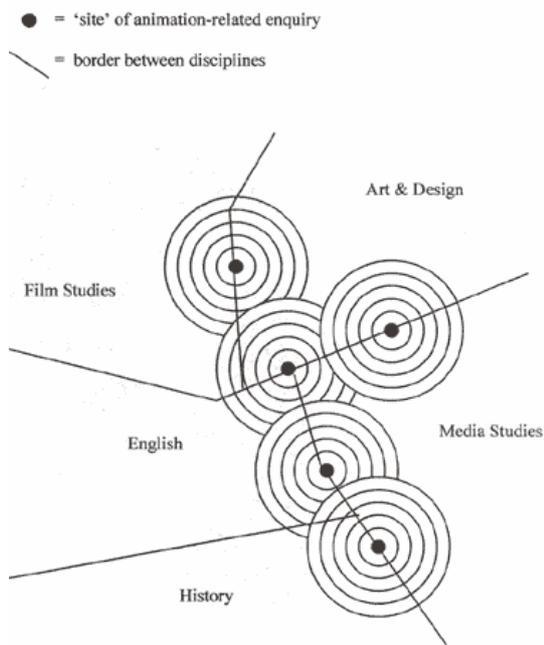
There is a tension between this plurality and the notion of there being a central "core" to "the subject" that can be easily identified. Being able to point to and document a discipline's "essence," its main objectives, has become one of the main issues in certain sectors -- an apparent obsession with being able to document and "prove" a discipline's "worth" by cataloguing what it does and how it does it. (Ward, 2003, p.1)

The diagram is designed to reflect the balance between the key related subject areas and the core focus or outcome which is 'animation'.

The terms cinematic, pictorial and sculptural have been used to show aspects of the subject of animation; 2D, 3D, constructed, moving images to name but a few terms related to the expression. The constant presence of technology sits on the periphery of the model affecting all that is contained within. As Peter Parr (Art Institute Bournemouth) notes; 'Advances in technology have a profound impact on the breadth of a course but this should be fused into the existing offer.' (Feb, 2008)

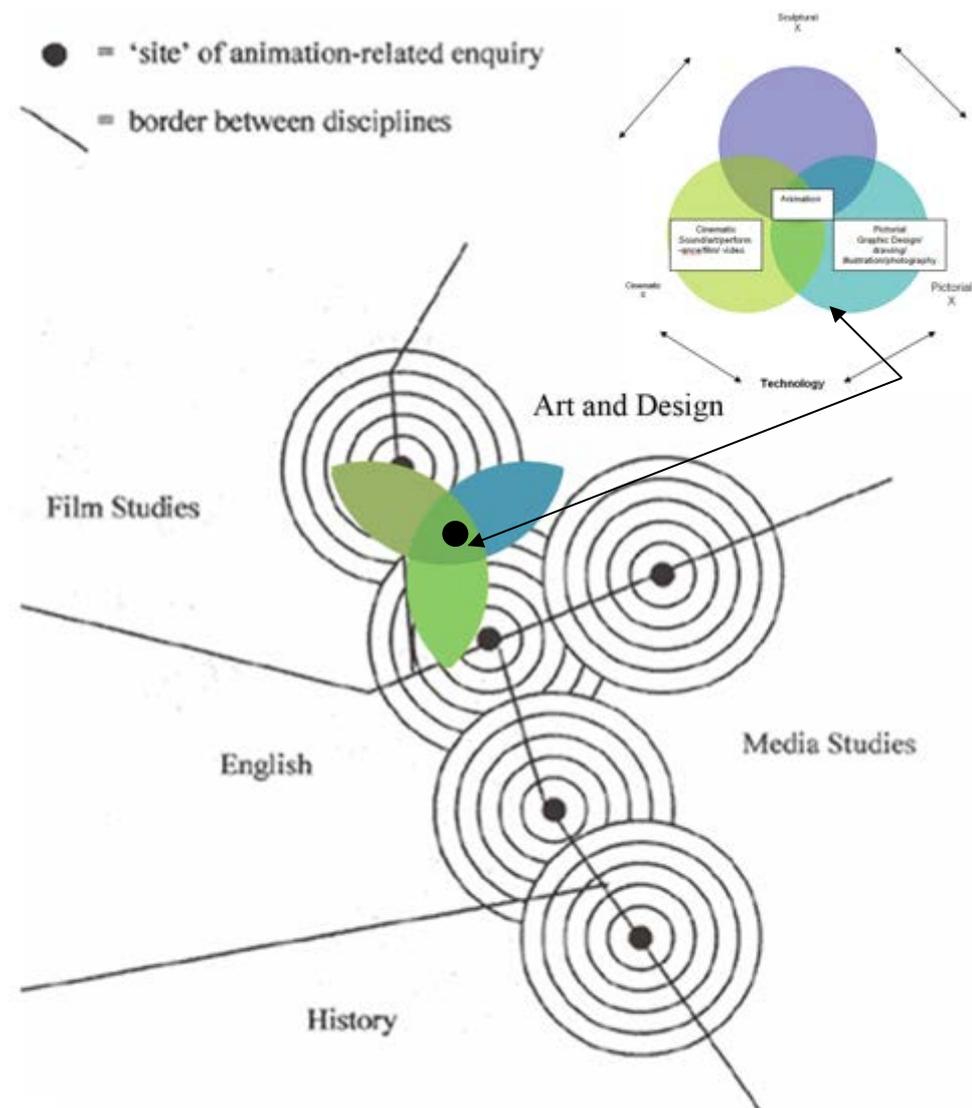
It was generally accepted by all those interviewed that technology and animation are implicitly linked and it is undeniable that technology has increased the diversity of animation. The diagram is an example of certain subject areas coming together to form a common outcome: 'It is animation's relationships with other knowledge areas- like film, media, art and design- that actually makes it what it is...' (Ward, 2003, p3)

Through his diagram (See diagram 1.22) Ward demonstrates that animation studies are a 'multi-sited' field with animation being a 'meeting point' of other disciplines. Through the analysis of his diagram he sees the 'sites' of animation related enquiry as near epicentres which situated along 'fault lines' create 'earthquakes'- hence the lines extruding from the epicentres being 'tremors' which can overlap with others in the area.



2.3: 'Sites' of Animation Enquiry. (Ward, 2003, p9)

Considering this theory and my own venn diagram for an industrial classification this can be placed in context with Ward's 'map' taking into account the blurring of disciplinary boundaries and the bigger picture for animation studies.



2.4: A new 'site' of animation-related enquiry. Hypothetic positioning of Venn diagram developed from McCall. (Jodie Wick 2008)

Ward's diagram fails to stand up to rigorous deconstruction firstly because we are left to make our own interpretations of the subjects included within the diagram and there is no space for aspects such as narrative, interactivity and sound design. For example there is no mention of the integral relationship of maths and physics to animation. Further questions raised through diffusing animation to this extent detach other subjects from one another.

For example, history appears to have been placed in opposition to Art and Design although this is not the case when studying the subject area.

Although it is important that boundaries are broken down, it may be at the expense of all other subjects, once again risking a 'flattening effect' making animation become 'everything'. Ward acknowledges these issues with systems that acquire meaning when referencing Hofstadter (1980) at the close of his essay:

Yet, until we more fully understand how a "map" of related knowledge areas might "fit together" -- and how some subjects can apparently exist in a number of places, while still retaining a sense of focus and identity -- then we will struggle to move beyond what are, frankly, simplistic theories of how disciplines overlap and hold apart. The concepts of discursivity/recursivity, along with the notions of overlapping "seismic" activity, and Hofstadter's "nesting," are important moves towards this fuller understanding. (Ward, 2003, p13)

User Groups

Marion Edwards (Chair Creative Skillset Animation Group/ Red and Blue Productions/ PACT Animation and Children's Policy group member) noted in discussion (interview with author, 01/04/08) that a definition for animation is dependent upon who you talk to. This chapter has been concerned with investigations of theorists' views interspersed with interviewee's comments. As Denslow observes in his essay 'What is Animation and Who Needs to Know?' defining or simply characterising animation will vary depending on who you speak to.

It has been established that 'some form of definition is required for government classification. (Parr, 2008). Marion Edwards notes that there are different priorities dependent on varying parties i.e. production or training and education, also many companies will span different areas of production and therefore have different priorities and focus. The situation is largely reactionary. When conducting the interviews for this chapter during spring 2008 there was a significant campaign surrounding issues with funding which resulted in decreased production of children's television in the UK, a large part of which is constituted by animation based productions.

Robin Lyons noted that it is important to identify if animation is being considered as content or application, and given the climate at the time of interviews, it would be easy to

fall into the trap of branding all children’s production as animation, which is not the case and part of the larger issue of assumption.

In terms of higher education (HE) and educator perspectives of the expression animation, it sits in-between the theoretical perspectives and industry:

Theoretical perspectives



Higher Education



Industry

Most of the academics interviewed (Hanna, Parr, Walker, Ellis, Gascoigne) agree that there is a need for debate about the definition of animation but also to recognise it is a shifting and growing area for media production. It is important that animation courses provide a wealth of varied differing opportunities... ‘If all animation courses provided the same set of skills it would diminish the breadth of graduate opportunity overall, and I think there is a danger in the narrowness of the existing definitions’ (Hanna, 03/03/08).

Marion Edwards and Robin Lyons both felt that education would benefit from closer industry dialogue and the honing of specific skills. Much debate continues as to whether Creative Skillset Accredited animation courses are the most appropriate way of verifying curriculum and course content. This is an initiative set up by Creative Skillset to ensure closer links between industry and courses and allow graduates to gain the right mix of vocational skills and experience, therefore to be more prepared for the industry.

Of the academics interviewed there was a divide in opinion regarding course structure, some favouring the more vocationally based industry production route and the ‘auteur’ animation course route. As Edwards comments there is definitely room for the two types of courses, but potential students need to be steered towards the appropriate course for their needs considering not all animation students will become directors, producers and innovators and so better information needs to be available when making those decisions.

Peter Parr concurs that, 'Universities should be clear in their definitions given out in prospectus data to inform choice.' (02/03/08).

Given the influence of new technological developments on animation, Denslow warns that academia is predisposed to adjusting the definition of animation to include any new technological developments. This may be a temptation with some courses and it is undeniable that technology has an impact on learning and skills. Tammy Ellis notes that:

Animation is a progressive area due to the developments of technology, new technology is shaping and classifying what is now being accepted as animation.

The technology not only shapes the viewing markets, but also defines studio production houses, and also shapes the way learners work no matter what the background or skill level required. (Interview with author 03/04/08)

Accessibility has meant that anyone can create varying forms of animation and moving image because technology has become so available as a tool. It is necessary to remember that traditional skills and fundamentals of the discipline are at the core of any course in order that the individual has a strong foundation for future learning. David Ehrlich (Independent Animator who teaches at Dartmouth College) commented in the *International Journal of Animation* that a student should have a strong understanding of the theoretical processes of animation:

This is because any future career will necessarily embrace a multitude of new developments that would not yet have existed during the student's education. And the best preparation would prepare the animator to move conceptually from one to the next. It should be the goal of animation education to develop creative people who are both artistically imaginative and creative at technical problem-solving. (Ehrlich et al, 2007, p.27)

Steve Hunt (Senior Lecturer in Digital Animation, University of Hertfordshire) agrees that there is a relationship between ways of thinking and a technical tool used both creatively and within craft mentality. He further underlined the importance of educating for the long term, stating that it is important to form relationships with industry but also be aware that industry has a rapidly changing agenda. Damian Gascoigne (Kingston University/ Picasso Pictures) warns that animation education needs to be careful of losing touch with the changing reality of industry and the effect that technology has on animation production, he considers it is important that new forms of animation production are imbedded within the curriculum:

Specifically technical skills such as modelling, rigging, skinning, technical directing, lighting and rendering are way beyond the abilities and expertise of one individual. So, we either have to go the way of the French Schools at Supinfocom and Gobelins, and instruct students to work in groups of three to six on their films, or we have to forget all about making films using the digital technology and get them to work solely on character design, animation skills, or storyboarding. (Interview with author, 04/03/08)

There seems to be a growing place in higher education for both types of courses and in a sense the varied forms and perceptions of what animation is and can be distinguished as. The constant development of technology cannot be ignored and yet the consensus with which value is attached to it is extremely broad, blurring distinctions even to the extent of traditionally more separated subject areas such as fine art.

George Griffin (Ehrlich et al, 2007, p.29) observes that much depends on the context of the education environment in which the course is run. Griffin continues by stating he feels it necessary to distinguish between a career and a practice, which is its own reward, and he doesn't consider audience or the market. Perhaps this is where the fundamental difference between education and industry emerges? There is an ongoing struggle between career and practice, commercial and creative and as explored earlier in the chapter, content and application. These are all key areas that need to be factored into the consideration of the term 'animation'.

Stu Aitken cites a more industrially focused definition of animation :

Animation...the service of some kind of commercial need- predominantly entertainment, information and advertising as opposed for purely creative non-commercial reasons. (Interview with author, 06/03/08)

Key Outcomes

Process

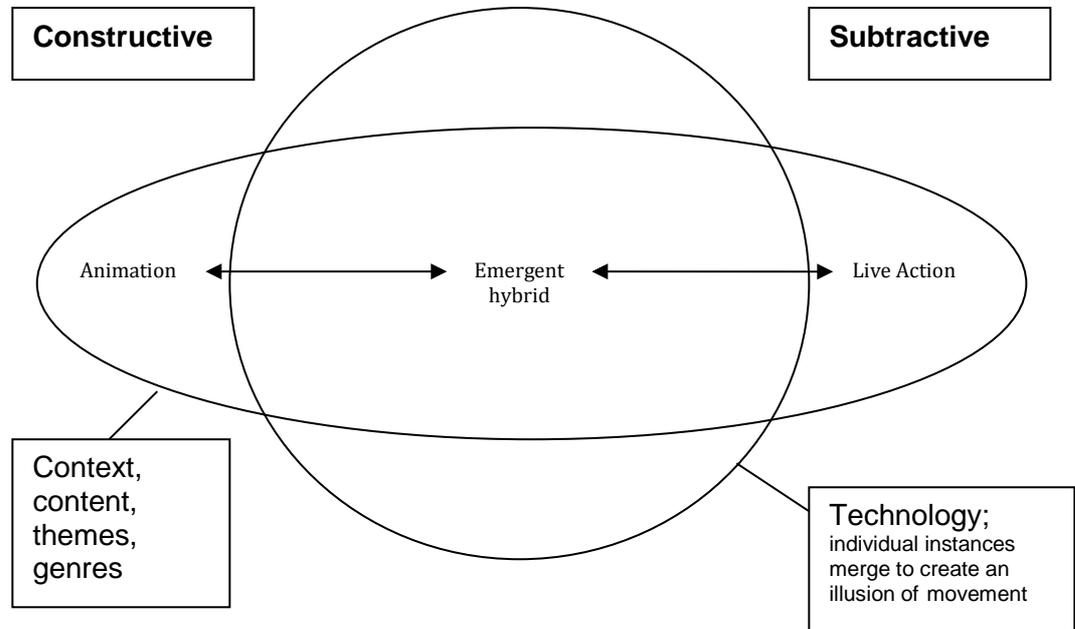
In seeking to develop some form of focus for investigating the animation industry this chapter has taken theoretical perspectives, views from academics and educators and includes insights from industry and key policy-related organisations. Animation is viewed as a constructive process, creating a product through manipulation and deliberate placement to construct a visual product. This leads to the question whether the term 'animation' is being used to describe content or application or both. Can the two be separated; is animation a creative process or an interpretive tool for a particular mood or genre? It could be argued that to 'animate' is an active verb that can be used in conjunction with other verbs, and is repeatedly used to identify the actual process.

Content

Many practitioners would choose to 'animate' an idea because it is the best way of realising an inspiration in terms of physical and emotional qualities through manipulating meanings. In some ways this method has been arrived at and unintentionally chosen simply because it was the best system of communication. Technology is having a large influence on the development of animation and is opening the area up far beyond that of its traditional parameters, allowing for 'hyper reality' in the viewing experience.

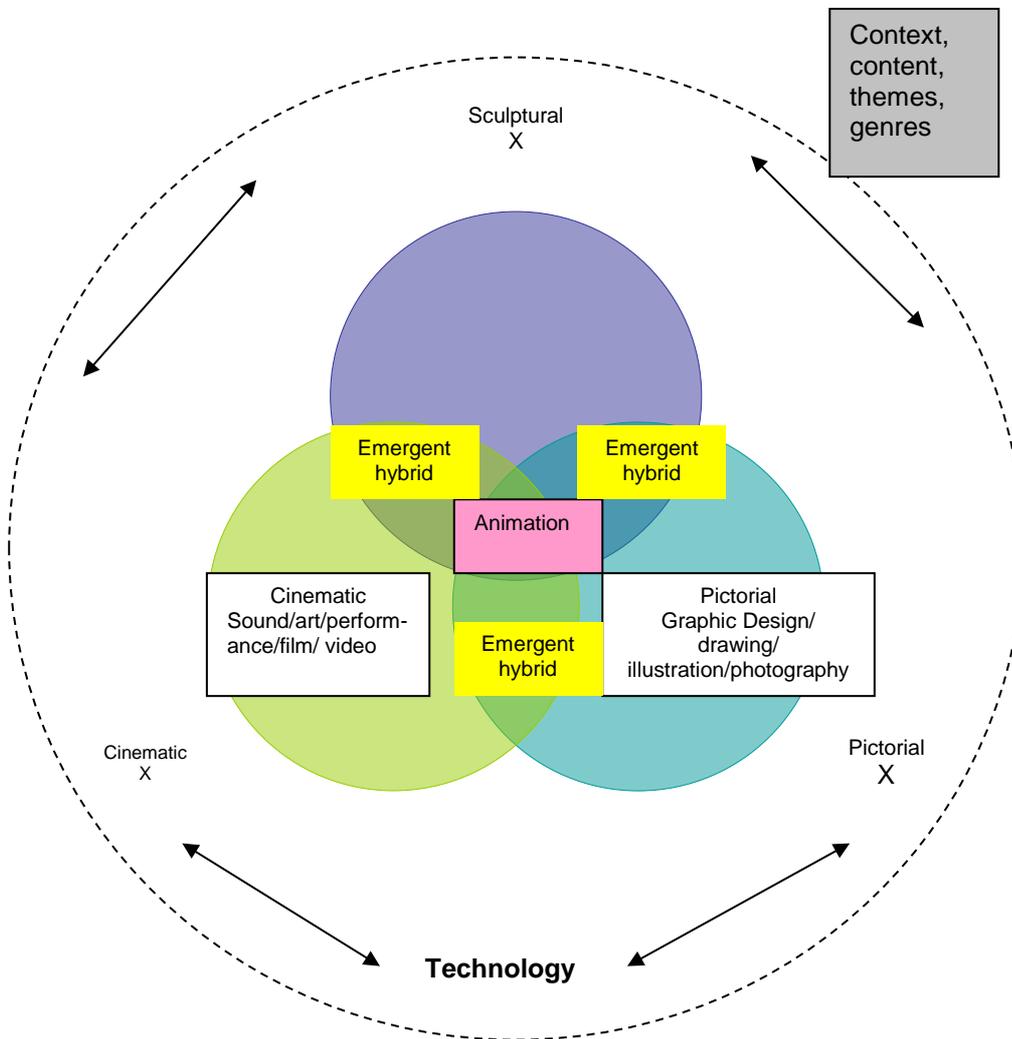
Representation

The technical diversity of animation is allowing producers to manipulate reality and create an alternative 'illusion of life', something that is believable to the viewer in context. The distinguishability of fantasy and reality is linked to the content, context and themes that need to be included within the mix of both process and use of technology.



2.5: The relationship between animation and live action (Jodie Wick, 2008)

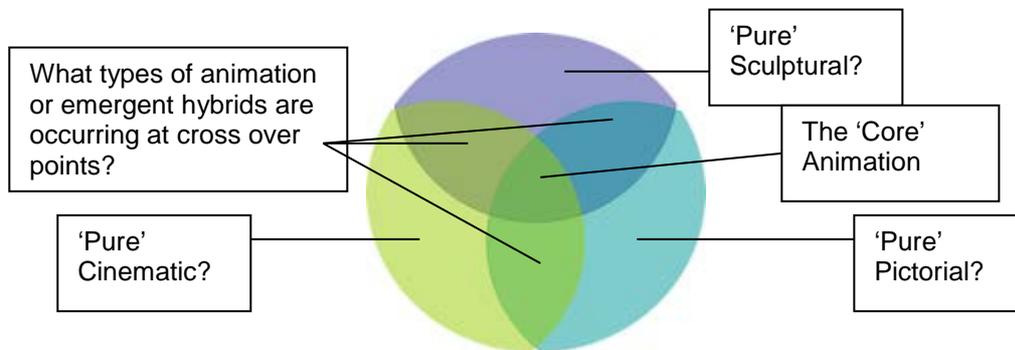
The diagram (1.24) above examines themes explored in the initial stages of this chapter. It has been created with the intention of linking relevant theories (namely Darley and Langer) that have shaped the development of the focus of this study. The relationship between animation and other subject areas could be explored in a similar way siting the periphery, constantly shifting and re amalgamating elements dependent on the application and situation. As Darley commented, any theory in relation to animation needs to be applied on a case-by-case basis. This diagram gives a far better understanding of the relationship between the two areas and the diversity of locations that animation can occupy at any one time. This is not to ignore the venn diagram based on McCall’s theories constructed on p 102. This process has highlighted the importance of the emergent hybrid in relation to other practices and animation as well as constituents surrounding context, content, themes and genres.



2.6: Key influences in defining animation (Jodie Wick, 2008)

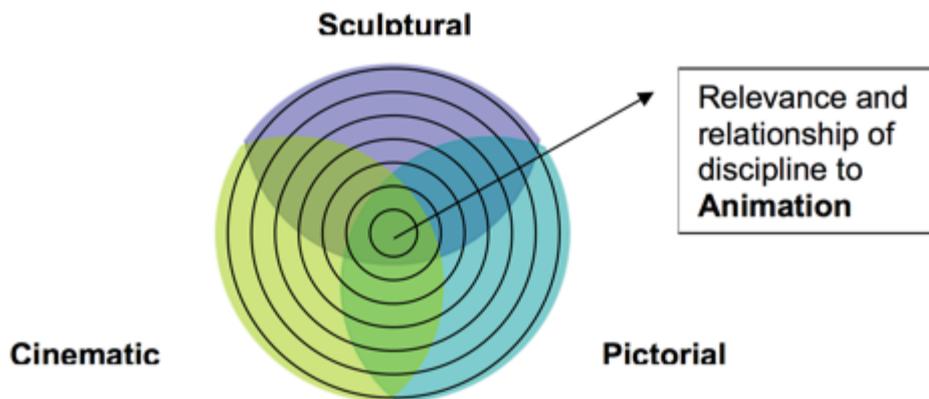
The diagram above takes us a stage further on from both of the previous propositions, juxtaposing the emergent theories and findings from this chapter. Animation has been placed at the core as this is the focus of the study, key influences on this term, the arenas of cinematic, pictorial and sculptural representation and examples of these meanings have been distributed to create emergent hybrids that in terms of this study can be classed as derivatives of animation.

This demonstrates that animation can be classed as any combination of these activities and that all three do not necessarily have to be present in equal measure to constitute a so-called 'pure' form of animation. Technology is a constant of all these subject areas, driving development and developing process. A further addition is the circle of content, context, theme and genre. The line is deliberately "broken" to allow the contents of the circle to flow between other 'sites' freely and be necessarily unconstrained. A key question arising from this diagram centres on the notion: does animation only happen on multiple sites?



2.7: The animation process between the 'Pure' sites (Jodie Wick, 2008)

We need to examine what is happening in-between the 'overlaps' as well as within those areas in terms of the relationship to animation. The diagram below (1.27) gives an indication as to the relationship of these 'meeting points', (Ward, 2007, p.9), not only at the centre of the diagram but at each overlap of the three key disciplines. It can be argued that the intensity and relevance to the area of 'animation' decreases as the 'tremors' (Ward, 2007, p.9), subside to include more of the 'pure' subject area and less of the 'emergent hybrid':



2.8: 'Tremors' (Ward , 2007) applied to the defined animation subject areas. (Jodie Wick, 2008)

Occupational Groups and Roles

Although I am looking for an industrial focus of the term 'animation', this diagram could be easily applied to all areas of animation whether or not commercial in nature. In considering how Creative Skillset define animation for the purposes of data collection Chris Chiltern (Computer Games and Animation Manager, Creative Skillset) notes that in order to define the industry when conducting their bi-annual employment census they allow those

participating to self determine whether or not they consider themselves to work in the animation industry:

...we will target companies in various directories and our own previous contacts, however they are always asked the question about which sector they see themselves as part of. Animation companies are a bit different as they span different areas (film / tv / post production) In addition we count animation as a job role – so we get figures for, for example the number of people working in games whose primary activity is animation. (Interview with the author 05/10/07)

Marion Edwards agrees that the Creative Skillset census gives a principal focus point as it also embeds animation roles within occupational groups giving a better overview of the crossovers within the industry. The census also covers a wide scope of the industry and a cross section of various companies and individuals is measured (See literature review appendices for full list of Creative Skillset occupational groups). In terms of occupational groups animation is classified under Producing, Drawn/Stop Frame and 2D/3D Computer animation. Under Producing there are various roles and animation is defined as one particular role in that occupational group:

Occupational Groups	Role	Examples of Job Titles
Producing	Animation	Producer

2.9: Animation Producer Classification with Creative Skillset Occupational Roles (Creative Skillset, 2004, p 11)

Animation as has two fully defined occupational groups including a slightly more comprehensive list of examples of job titles for census participants to classify themselves as:

Drawn/Stop Frame Animation	Pre-Production	Character, Set and Prop Builders, Designer (Character, Location and Prop), Layout Artist, Script Editor, Storyboard Artist
	Primary Creative	Art Director/Principal Design, Director, Producer, Writers
	Production	Animators, Background Artists, Compositors, Digital Paint and Trace Artists, D.O.P./Camera
2D/3D Computer Animation	Pre-Production	Designer (Character, Location and Prop), Editor, Storyboard Artist.
	Primary Creative	Art Director/Principal Design, Director, Producer, Writers
	Production	Animator, Compositor, Lighting, Modelling, Technical Director, Texture Artist

2.10: Creative Skillset Animation Occupational Groups (Creative Skillset, 2004, p 11)

Finally there are other areas that do not specifically mention animation but are ambiguous in that they may contain animation-related activities where animators may work. As Chris Chiltern comments it is expected that participants will define themselves and so if they feel they are an animator they may position themselves in another role:

Post-Production	Audio	Assistant Dubbing Mixer, Dubbing Technician, Senior Dubbing Mixer, Sound Editor, Sound Engineer
	Bookings	Bookings Assistant, Bookings Manager, Client Liaison Manager, Facilities Manager
	Digital Effects	Digital Effects Supervisor, Digital Matte Artist and Digital Compositing Artist
	Editing	Assistant Film Editor, Film Editor, Non-linear Editor, Tape Editor, Technical Assistant
	Engineering	Assistant Engineer, Chief Engineer, Junior Engineer
	Graphics	Graphic Designer (various grades)
	New Media Facilities	Compressionist, New Media Technician
	Production	Producer, Supervisor
	VT	Junior VT Operator, Senior VT Operator

2.11: Animation Related Occupational Areas (Creative Skillset, 2004, p 11)

Sector and Sub-sector

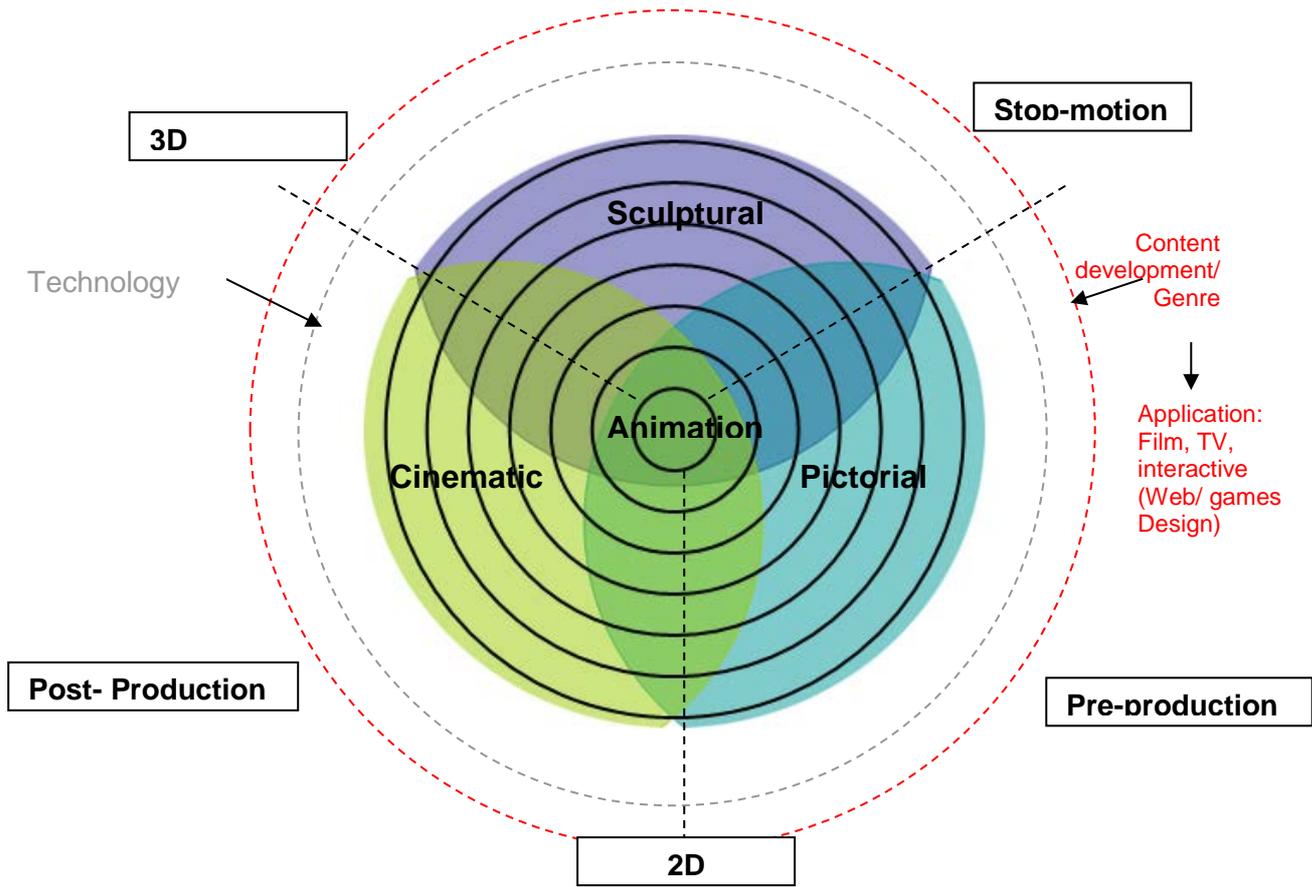
Beyond the Occupational Groups and roles, Creative Skillset references 18 different sectors in which the roles can be cross-referenced (See Appendix 2.1). This effectively means that a census participant could position themselves as a 2D/3D computer animator in commercials production giving both an occupation and a sector. This method works well on a large scale but, when reviewing census results (as discussed in Chapter 1) certain levels of detail are lost including the actual job roles beyond occupation groups, cross-over areas such as post production and finally this level of data is only available at a national level and not for the nations and regions.

Function Mapping

An extremely important factor that makes this investigation and focus relevant specifically to industry is the understanding of the roles within the sector. One potential solution is the development of the *National Occupational Standards for Animation Function Map* developed in 2006 for Creative Skillset by Jonathan Hirsch and Mike Shillabeer.

The Function Map contains all aspects of the creation of animation from specifically identifiable areas to the less specific processes rather than occupations. This map gives a good overview of functions with the commercial industry 'production line'. It would benefit from some additional information relating to the Creative Skillset occupational categories and content factors (See p.118 for developed diagram). This function map serves to illustrate the two extremes of how the term 'animation' might be focused or defined within the development of a framework for this research. Further to this, the diagram below consolidates some of the theories developed within this final section of the chapter. It can be seen that varying techniques and processes can be associated with particular disciplines radiating from the core term 'animation'.

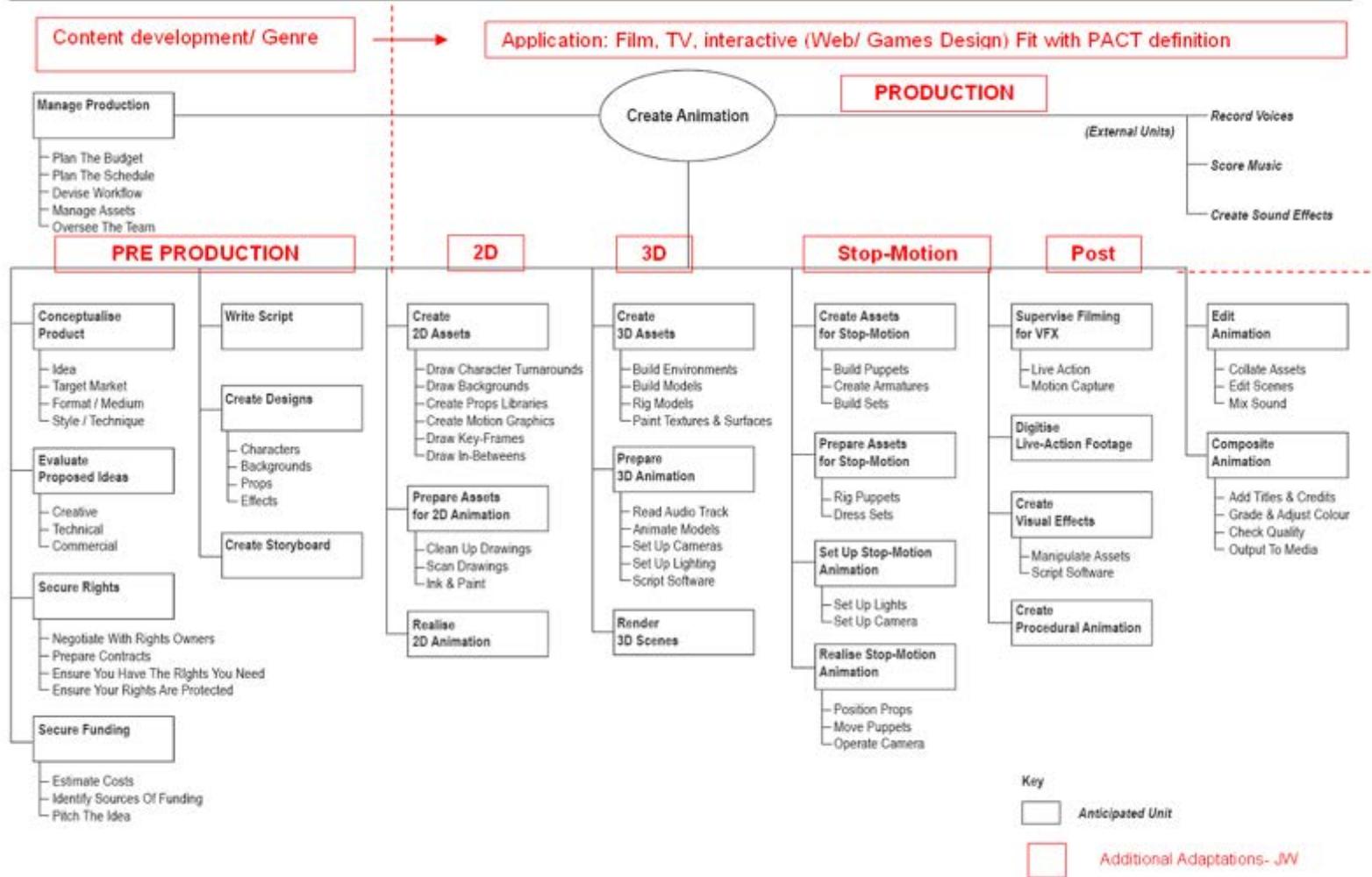
Content and application sit on the periphery as a constant along with technology that is used to varying degrees as a tool to complete the process. Each aspect of animation production as defined by Creative Skillset and included on the NOS function map can be seen, although functions or occupations cannot be viewed in detail at this point:



2.12: NOS Function map applied to animation definition theory (Jodie Wick, 2008)

2.13: National Occupational Standards for Animation: Functional Map

Draft 1.0 14th September 2006 Produced for Skillset by Jonathan Hirsch & Mike Shillabeer



Summary

Several themes have been established through the development of the chapter in relation to both the definition of animation and its variation depending on differing groups' points of view or biases. It has been noted that there is an intense debate between education and industry and much further work is required in order to bridge the rift between high academia and industry. This chapter is not intended to suggest 'quick fix' solutions but instead offer a potential definition by which to propose focus for the parameters of this research. It is intended that the shape of this definition will continue to change as the research develops.

A key fact is that animation covers a multitude of areas. Any method of data collection must fit with existing frameworks in order to avoid research that becomes irrelevant to future studies. The proposition of the venn diagram (p 115) offers a definition that reflects the changing conditions of production and reception and remains the favoured position for this research. It is not necessarily a technical definition but one that encompasses a myriad of unidentifiable techniques and functions.

The next stage of development will be to assess the usefulness of this initial and partially developed definition and its mapping focus for the term 'animation'. This will include more in-depth interviews particularly with Creative Skillset and DCMS to assess the development of this focus in comparison with their own strategies. The definition is broad enough for practitioners to classify their work and to incorporate contemporary practice such as special effects, visual effects, postproduction and games design and associated job roles. The key is finding a balance of measurement that is not prescriptive thus allowing the term to remain fresh and current.

Chapter 3

Methodology- Research Design

Introduction

In this chapter I unpick some philosophical assumptions, associated theory and the rationale to create an information base. This will act as a springboard for identifying and retrieving pertinent data and for underpinning the methodology to be employed at the next stage of the research.

The initial theoretical proposition for this research is based on the need for accurate data to inform the development of solid and useful policy for the subsector of animation in the East of England at both a regional and local level. Two key research questions will be examined and initially explored within this chapter:

- What is the framework for development- where is it located in terms of existing research methodologies?
- How can I create a model to better represent animation related activities at a local level?

In exploring these questions I reference Chapter Two regarding definitions of the animation industry as well as intended data outputs, units of analysis and indicators that will be suitable for measuring value at this geographic level. Within this section the following themes are explored:

- Identification of complex industry models and the affect on data
- Deconstruction and contextualisation of contemporary data frameworks
- The relationship between employee, business and location data
- Approach to development of the methodology

The research undertaken thus far supports the proposition that there is a smaller cluster of traditional animation providers operating in the East of England (Government Office Region- ONS Geography) area than previously assumed. This chapter will include new theoretical strategies based on contemporary research design that work to address inconsistent and inaccurate identification.

Research Design

The method for this research lies within case study research intended to investigate geographic concentrations of specifically animation related activities in a given city or region. There are multiple sources of potential evidence (data) that may need to converge in a triangulated fashion to be valid (Creswell, 2003, p 15). For the purposes of this research a mixed method procedure will be employed allowing for a pragmatic approach to the case study methods:

The case study relies on many of the same techniques as a history, but it adds two sources of evidence not usually included in the historian's repertoire: direct observation of the events being studied and interviews of the persons involved in the events being studied and interviews of the persons involved in the events. Again, although case studies and histories overlap, the case study's unique strength is its ability to deal with a full variety of evidence-documents, artefacts, interviews and observations-beyond what might be available in a conventional historical study. (Yin, 2009, p.11)

As Yin notes, the case study builds on information from historical material but can also offer the researcher an opportunity to include contemporary events within a present-day study. In this case the research is concerned with a methodology that measures a current industry whose 'taxonomy lags behind practice' (Pratt, 2010). This issue is widespread within the study of creative industries due to the fast rate of development and yet a balance needs to be found in order to manage this effectively.

This study benefits from an ethnographic stance as the author is also a practitioner in the subject area, but to be valid, the research requires sustained evidence of objective detachment. The study is derived from empirical data reinforced and contextualised by the reassessment of previous research to develop more insightful questions about the topic. In order to build a theoretical and conceptual framework a number of other theoretical perspectives are analysed (Kumar, 2005, p.35- 37). The case study method allows for direct observation of the events being studied and interviews with persons involved in those events (Yin, 2009, p.11). This, coupled with the author's direct understanding of the subject allows for a deeper understanding of the complexities and outcomes of a specialist subsector.

Through the adoption of a case study method, it is intended that the variety of both qualitative (text based information i.e. interviews) (Creswell, 2003, p.20) and quantitative evidence and data collection procedures, will provide a stronger substantiation of constructs and hypotheses (Eisenthartdt, 1989, p. 538) and ensure a non-biased broad range of evidence.

The work undertaken in developing this methodology has been iterative, emerging from an initial conceptual framework; further study of literature, evidence and investigation have defined the unit of analysis and measurement to be taken forward. In order to work responsively to a broad and fast moving evidence base whilst conceptualising empirical data, a Grounded Theory (GT) (Glaser and Strauss, 1967) approach has been employed:

Two primary characteristics of this design are the constant comparison of data with emerging categories and theoretical sampling of different groups to maximise the similarities and the differences in information (Creswell, 2003, p.14)

My strategy and methodology has been developed, refined and increasingly focused (Trochim, 2000) through vigorous analysis of detailed cyclic evidence. Application of the GT method has allowed the theory for the methodological design to develop in a procedural and incremental way 'the theory-building process is so intimately tied with evidence that it is very likely that the resultant theory will be consistent with empirical observation' (Eisendhardt, 1989). Given the nature of the process adopted, further rationale for the implementation of various methodological theories and detailed information of the application and approach of those methods will be including throughout this chapter.

Clusters

In order to identify the animation industry in relation to place, the intuitive approach is to discover where the industry is situated with respect to geographical location. Andy Pratt (2010) notes that the building and maintaining of colonies in one territory is endemic of the creative economy and it is widely recognised that creative clusters play a key role in the economic development of a geographic location, Simon Evans further explains:

A distinctive feature of creative enterprises is that they only thrive in each other's company. Whether they are artists in Manhattan lofts, film-makers in Bollywood, fashion designers in Milan or animators in Seoul, creative enterprises gather together in visible hot-spots which, when fully

established, become self-sustaining clusters of creative activity. This happens at every level, from the media centre in a small town to global centres like Hollywood. (Evans, 2005, p. 3.)

Clusters are not specifically associated with creative industries or for instance, one particular sub sector such as animation. De Propriis et al note within 'The Geography of Creativity' (Nesta, 2009) 'firms that cluster together have been found, in some cases, to benefit from agglomeration and external economies' (Bellandi, 2003, 2009; and Porter, 1990); advocating the benefits of geographic proximity. Many successful animation clusters have developed alongside associated industries such as broadcast television, post production or games design. Clusters can grow from small beginnings with a shared understanding of the infrastructure of the industry. Clusters are defined as concentrations of competing, collaborating and interdependent companies and institutions, which are connected, by a system of market and non-market links (DTI):

Clusters suggest that a good deal of competitive advantage lies outside companies and even outside their industries, residing instead in the locations at which their business units are based. This creates important new agendas for management that rarely are recognised. For example, clusters represent a new unit of competitive analysis along with the firm and industry. Cluster thinking suggests that companies have a tangible and important stake in the business environments where they are located in ways that go far beyond taxes, electricity costs, and wage rates. The health of the cluster is important to the health of a company...Trade associations can be competitive assets, not merely lobbying and social organisations. (Hartley, J, 2005, p. 260)

As Hartley notes, much of the development of clusters is dependent on the infrastructure of that industry regarding skills, training development, academic and business linkages etc. De Propriis et al (Nesta, 2009) pinpoint a categorisation for creative cluster economies, identifying two types of phenomenon, which led to creative industries forming cluster patterns:

- **Agglomeration economies**- *including a pooled specialised labour market: Agglomeration economies occur when a critical mass of sector specific socio-economic and institutional activities take place in a particular place (Malmberg and Maskell, 2002)*
- **Urbanisation economies**- *considers creative industries thrive in an environment of diverse sectors... facilitating the transmission of knowledge, ideas and technologies which might be 'old' to one sector but 'new' to another.*

(Adapted from Nesta, 2009, p.11-12)

These economic arrangements have an impact on the potential analysis of regional data. Neither cluster patterns are believed to be mutually exclusive but simply factors in the development of a concentrated area of creative economic activity.

This investigation will initially contextualise how information about the animation sector is collected and disaggregated. Cluster thinking is at the forefront of most regional strategic plans, the Government has highlighted that the adoption of a cluster strategy is a potential route to economic success within the 'innovation economy':

...cluster thinking has in many cases not been well understood. In their rush to compete, many places are adopting policies and programmes from other locations without making the effort to adapt them to local circumstances, and so what should be a locally specific approach becomes a copycat exercise. (Evans, 2005, p. 3.)

Evans maintains that the circumstance of a situation must be accurately identified in order for the right supportive measures to be applied. The first point of analysis is to understand the subject in context, where is the value held and how can it be measured? In their paper 'A new definition for the Creative Economy', DeNatale and Wassell (2007) contextualised the role of the creative cluster within the wider creative economy:



3.1: The Creative Cluster within 'A new definition of the Creative Economy' (DeNatale and Wassell ,2007, p.5)

This model identifies three core consistent areas of study that contribute to the main facets of analysis, none of which can exist without the other:

- *The creative cluster, defined as those enterprises and individuals who directly and indirectly produce cultural products (commercial and non-profit industries)*
 - *The creative workforce, defined as the thinkers and doers trained in specific cultural and artistic skills who drive the success of leading industries that include, but are not limited to, arts and culture (occupations in commercial and non-profit sectors)*
 - *The creative community, defined as a geographic area with a concentration of creative workers, creative businesses, and cultural organisations*
- (Markusen et al, 2008, p.30)

It presents the research with a holistic definitional representation, providing an enhanced view of core parameters for the context of the study. In order to investigate the notion of these interlinkages defined by material and value dimensions (Roodhouse, 2006, p.20) it will be necessary to identify what the exact subject of the study is and how it can be measured.

Measurement and Sources

Through analysis of a range of UK regional creative and cultural industry independent reports (De Propis et al, 2009, Roodhouse,2003, 2008, Mercier, 2003) it became clear that the standard definition for comparative measurement of varying sectors and industries was standard industrial classifications (SIC's). The 2007 *Sector Skills Almanac for the UK Sector Skills Agency* (SSDA) housed at the UK Commission for employment and skills (UKCES) aimed to provide a portrait of skills of the UK workforce sectors. The report drew together the work of the *Skills for Business* network which comprised (at the time) 25 Sector Skills Councils (SSC's). The sector compared 27 industries in relation to SIC codes as well as data from major SSC's that covered each sector comparing workforce composition for each sector across the whole economy and also at a regional level. The paper provided little evidence in relation to the audiovisual sector and more specifically animation, due to the industries selected being directly related to the SIC 2003 Industry classification system alphabetical section design* rather than SSC coverage.

*SIC Classifications order: Section, Division, Group, Class, Subclass

Despite the lack of sector specific data, the report offered a framework for Labour Market Intelligence (LMI) and key government sources for those indicators:

- Sector definition- Standard Industrial Classification (SIC)
- Indicators of Sector Size- Output growth (IER), Workforce Size (LFS)
- Indicators of economic performance- Productivity (Experian, IER), International productivity (Experian), Business Creation (IDBR)
- Indicators of workforce composition- Size of firms (ABI), Profile of workforce (LFS), Occupational Structure (LFS), Workforce qualifications (LFS).
- Indicators of Demand- Employment growth (IER), Training (SfBn, LFS, NESS)
- Indicators of skills imbalance- Earnings (ASHE), Vacancies (JCP, NESS), Skills gaps (NESS)

Note: Abbreviations are supplied in Glossary

This provided a starting point for a compendium of potential comparative, Government created sources of data related to particular subjects or focus for research. Further investigation at the time found that more detailed sectorial data was available through the now defunct *Sector Skills Matrix* (2007) compiled by the SSDA and claimed to be 'the single most comprehensive source of data available from official, national data sources'(SSDA, 13/06/2007). In addition to the industry sectors used by the Office of National Statistics (ONS) and defined by the SIC codes, Sector Skill Council footprints were defined by qualitative criteria and SIC codes using the best available fit. As a result LMI was created for the following areas and sources:

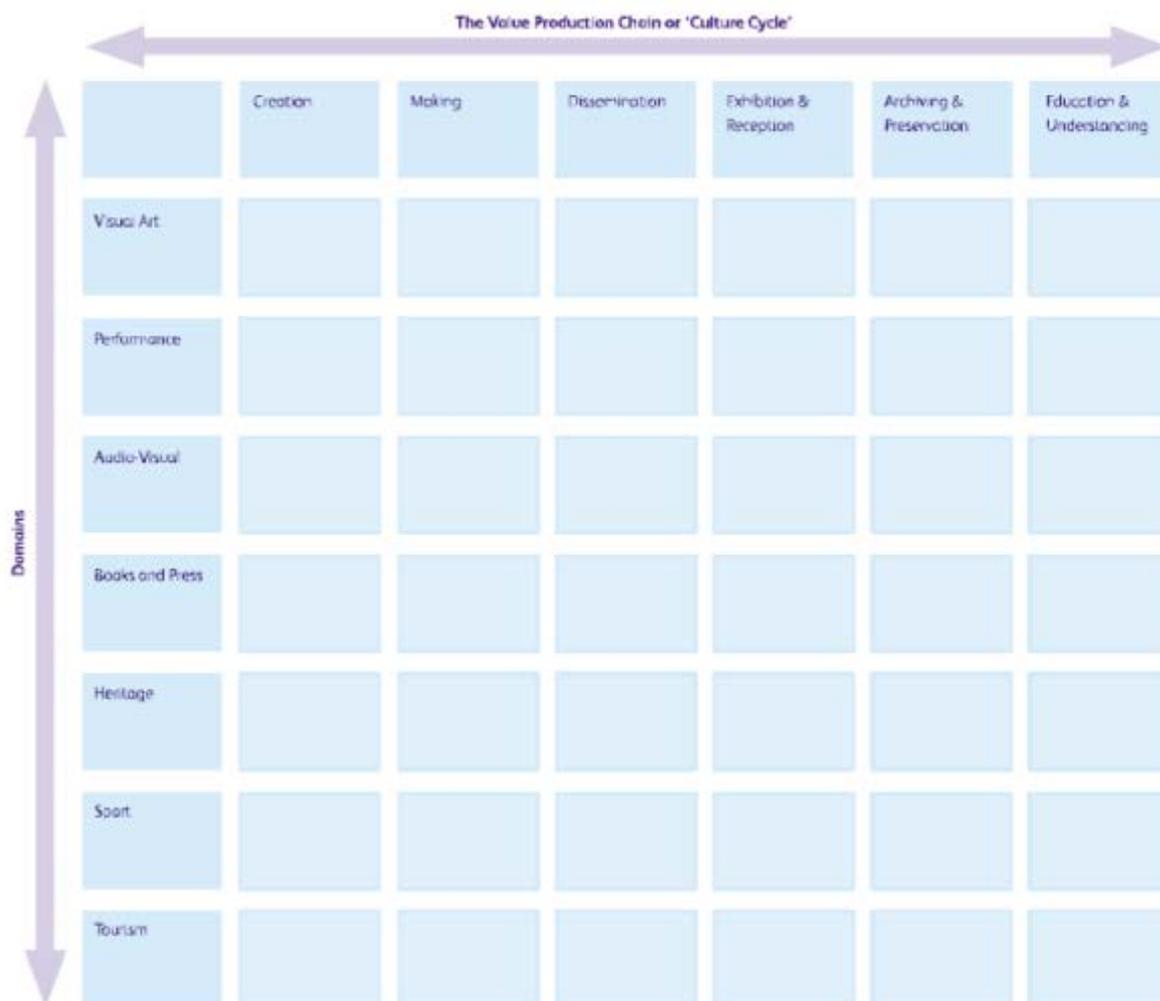
- Indicators- Output (IER)
- Sector Characteristics-Productivity (ABI, IER)
- Business creation (IDBR)
- Employment- Estimates (IER, LFS, ABI, SSC)
- Employment- Regional Distribution (from above sources)

The data covered the whole range of Creative Skillset sectors as one group including broadcast, film, video, interactive media and photo-imaging (SSDA, 2007, p121) with no additional disaggregation as this wasn't possible due to the nature of the classifications of the sectors that sit within Creative Skillsets domain. The report remarks...

For richer, deeper sector specific intelligence, contact the relevant SSC. SSC's are remitted to collect in-depth intelligence relevant to their whole footprint. They therefore seek to fill the gaps left by the SIC system.

<http://www.ssdamatrix.org.uk/files/understanding/Sector%20detail/Is%20more%20Ode>

As Creative Skillset data is not based on Government sourced comparable data frameworks, in order to gain an overview of past applications and models, an example of analysis was sought using SIC codes at a more detailed level, both in terms of sector and geographic location. To that end, one key paper entitled *Joining the dots... An Audit and Analysis of existing Quantitative and Qualitative Research Data on the Cultural Sector in the South West of England* (Mercier, October 2003) was selected. The paper highlighted the application of data collection using SIC codes and the Regional Cultural Data Framework (RCDF), which was the forerunner to the *DCMS Evidence Toolkit* (DET) published in 2004 (See p.37-44, chapter one). The research consisted of a matrix which plotted the 'Value Production Chain' or 'Cultural Cycle' horizontally i.e. creation, making, dissemination against 'Domains' i.e. where 'audio visual' appeared on a vertical axis which mapped specific SIC's and other various government data to domains and situating them at certain points in the value chain:

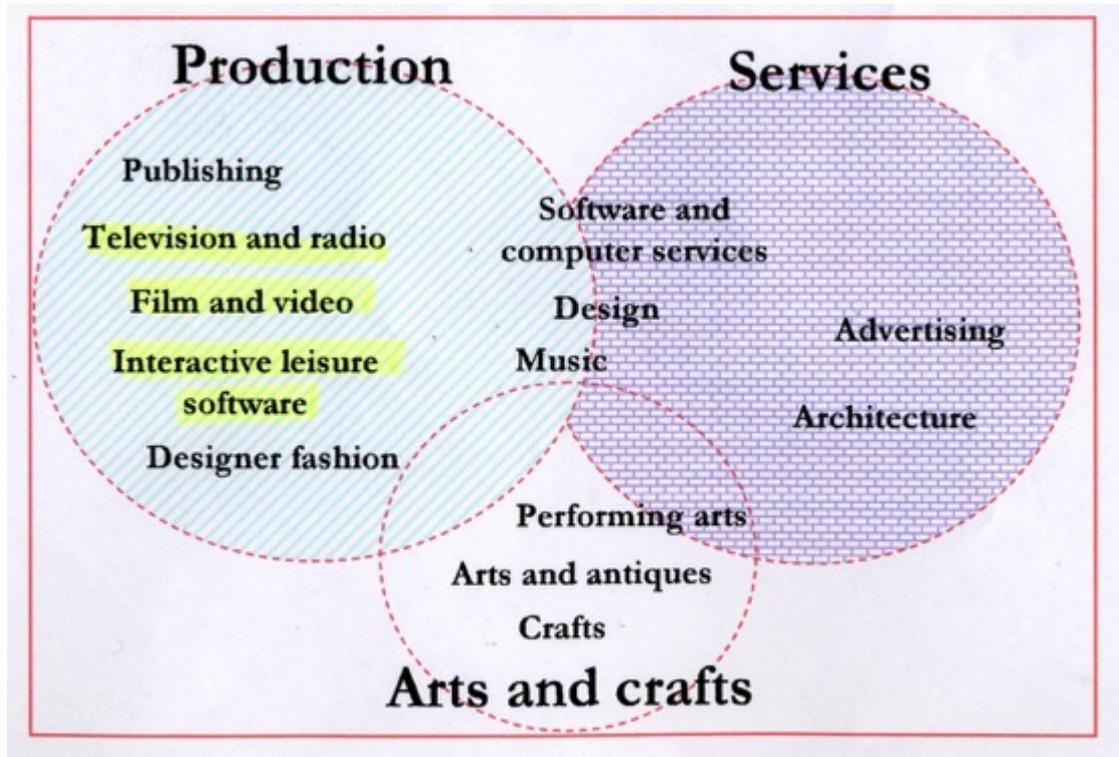


3.2: Cultural Sector Matrix Proposal (Mercier, 2003, p 13)

One of the key findings when data sources were mapped against the above matrix was that Government data based on SIC codes such as the Annual Business Enquiry (ABI) did not include data for VAT exempt businesses or self employment, potentially discounting a large number of people and vital data. The SIC coding system also excludes such information as the differentiation between creative, technical or administrative workers (Mercier, 2003, p26), giving a less accurate picture of the nature of work undertaken at each stage of the production chain.

The notion of the creative process being a contributing factor to the analysis of the creative industries was further investigated through the August 2006 Frontier Economics Report to DCMS entitled the *Comparative Analysis of the UK's Creative Industries*. The report was based on the standard 13 CI's* for which the DCMS was responsible (See chapter one, p33 for more detail on DCMS coverage) and included television and radio, film and video, interactive leisure software. Four themes emerged from the work:

1. The CI's can be divided into three groups (Production, Services and Arts and Crafts) see diagram below:



3.3: Creative Industries Identified Groups and Connections (Frontier Economics, 2006)

In classifying creative industries into broad industry types, Frontier Economics created a general classification system that appears to make generalisations about their outputs, employees and policy development requirements. As an example television and radio may also be classed as services, such as outside broadcast equipment, camera hire, with members from Arts and Crafts classified groups working within them. Despite this lack of specificity, it was a formal step to the Government recognising the recursive nature of creative industries.

2. The creative process is specialised and highly skilled

The report identifies that the creative process is the first step to producing goods for sale (Frontier Economics, August 3, 2006, p.9) and draws attention to the importance of those working in creative occupations within creative industries, pinpointing a core of individuals and SME's, signalling a requirement to measure these areas in terms of Creative Industries value.

3. Relationships with large and multinational firms are important

4. Rapid technological change is driving changes in market structure

Key themes 3 and 4 sit well together given the changing nature of relationships with multinationals, the impact of technology on creative industry practice and the need for production and distribution of content. Rifkin (2005) notes within his essay 'When markets give way to Networks' paraphrased here; We are moving away from Max Weber's idea of "organization" as a relatively fixed structure, to a point where there is a very strong notion of vertical disintegration and multiple embeddedness as characteristic of the creative industries. Companies and individuals are being brought together by a larger company to work on a project and disbanded when it is complete in order to move onto the next. In terms of animation, content is created and dictated to by changing technologies, platforms and user demand.

Frontier Economics began to map the supply chain for each of the 13 DCMS defined creative industries. Most notably of use were the film and video supply chain (p.172) and interactive leisure software supply chain (p.189) both containing development, production and consumption, with only film and video also including distribution. Further to the supply chain, identified activities began to be disaggregated into layers from SIC codes (Appendix 3.1).

The work carried out within the *Comparative Analysis of the UK's Creative Industries* formed the basis for The *Creative Economy Programme* (CEP) (DCMS/ Frontier Economics 2007). The CEPs key aim was to understand more fully the Creative Industries' direct contribution to the UK economy. There were six projects in total but of most interest to this work were the following:

Project 1- Statistical Analysis of the Creative Industries

Project 2- Analysis of Firm Level Growth in the Creative Industries

Project 3- Multinationals in the Creative Industries

(DCMS, Frontier Economics, 2007, p.3)

Projects 1 to 3 were intended to deliver a detailed understanding of the structure of the creative industries, the trends in growth and the types of firms which underlie those trends. Information sourced from data provided by the Office of National Statistics, interdepartmental business register (IDBR). The IDBR is a list of businesses maintained by the ONS and contains information on businesses over the VAT threshold in all parts of the economy which are classified by SIC codes. The information housed by the IDBR is classified using the most detailed level of SIC classification, 5-digit subclass used as the sampling frame for the Annual Business Enquiry survey (ABI). The DCMS proposed that the supply chain approach be applied to each sector creating 'different layers which represent different stages of the creative process within each subsector in the creative industries' (DCMS/ FE, 2007, p.6). Five layers of activities were defined, with 'layer one' housing the more creative activities (as defined by empirical qualitative examination of the SIC codes and empirical development of key activities). SIC codes were then mapped against these for each creative industries sector.

The work provided a much deeper understanding of the creative industries but also identified many issues particularly from the point of view of data sources, and broad government understanding of industries. The DCMS study was unable to examine the computer games sector separately and instead grouped it together with software and computer services industries, causing issues with clarity of data at a more detailed level. The IDBR also does not count small businesses operating without VAT or PAYE schemes (self employed, low turnover or sole traders) therefore potentially missing a large amount of valuable company data. From the point of view of large Governmental analysis this framework gives a transferable methodology, which offers the most detailed picture of the DCMS-defined creative industries activities, particularly where the economic value lies within the bigger picture of the UK economy.

In 2010 the DCMS (Botterill, May 2010) finally released an analysis applying the SIC codes for the Creative Industries at a regional level to 'Layer One' activities. The analysis provided regional scrutiny including counts of creative industries and levels of employment. This demonstrated the DCMS thinking on the arrangement of Creative Industries classifications, but was more generic in its groupings, avoiding the separation of different sectorial activities from one another:

The SIC codes¹ used here are from layer one of the Frontier Economics model:

36509 Manufacture of other games and toys not elsewhere classified	74819 Other photographic activities not elsewhere classified
7221 Publishing of software	74872 Speciality design activities
7222 Other software consultancy and supply	9240 News agency activities
74201 Architectural activities	92111 Motion picture production on film or video tape
74202 Urban planning and landscape architectural activities	92119 Other motion picture and video production activities
74205 Engineering design activities for industrial process and production	92201 Radio activities
74402 Planning creation and placement of advertising activities	92202 Television activities
74813 Other specialist photography	92311 Live theatrical presentations
	92319 Other artistic and literary creation and interpretation

3.4: SIC Codes for Layer One Activities (DCMS/ Botterill, 2010, p.2)

The very notion of classifying layer activities appeared to fit more to occupational roles than industrial classifications. It was briefly noted within the report that occupational codes (SOC) would not be used as there was no detailed source data that could provide comparison over time. This analysis was based on 2006-2008 IDBR registrations, as 2009 data had been collected using the new SIC 2007 classification structure, signifying a further problem of comparison when data is collected using a new classification structure. Government statistics were also dealing with a new round of SIC codes and structure moving from SIC 2003 to SIC 2007 requiring the DCMS to remap creative industry definitions to the new more detailed SIC 2007 classifications (DCMS, Feb 2010, Creative Industries Economic Estimates). This may reduce proportionate estimates and granularity issues of SIC code descriptors but in turn potentially make comparison with previous data impossible.

This approach is limited by the confines of SIC definitions, and leads to a lack of comparability of sectors down the scale from DCMS to the SSCs, who are charged with understanding and supporting those industries that fall under the DCMS definition of Creative Industries.

Locating Animation

The DCMS definitions of creative industry activities do not fall neatly under SSCs and SIC codes do not allow for accurate classification of all activities included with the SSCs remit. This provided a challenge in locating the animation sector.

Creative Skillset is the SSC for the Creative Media Industries (Previously defined as the audiovisual industries, it is charged with providing support to twelve sectors): advertising, animation, computer game, facilities (including VFX), fashion and textiles, film, interactive media, other content creation (including pop promos, corporate and commercials production) photo imaging, publishing, radio and television (Creative Skillset, 30/06/10). These sectors sit within the creative industries definition that DCMS work to, and are broadly confined to the following four DCMS creative industries groups:

- Advertising
- Film, video and photography
- Television and radio
- Software, computer games, and electronic publishing.

Creative Skillset acknowledges issues with counting Creative Media Industries that are content producers:

Within the wider definition of the creative industries, the Creative Media industries are bound by common output in the form of creative content and increasingly the boundaries between these business and sectors are becoming blurred. Whilst there are still key distribution platforms including; cinema, TV, books/print Media and online and mobile, companies creating content are doing so in a way that can be used for multiple platforms. (Creative Skillset, December 2009, p. 4)

In 1999 Creative Skillset was directed to supply additional data to measure as a priority, the size, shape and specific skills demand of the Creative Media industry. This was as a result of reviews conducted by DCMS, the Creative Industries and Creative Skillset (Creative Skillset, December 2009, p.33) concluding that national data sets mainly formed by SIC and SOC codes did not offer either the coverage, detail or flexibility required. In cases where they did provide adequate coverage, the data was based on lean samples with large temporal gaps. Much official survey data excluded freelancers, sole traders and those below the VAT threshold. In response to these issues, primarily the need for data at a granular level, Creative Skillset devised its own bespoke survey methodologies.

Creative Skillset's *Research Strategy* (2008-2011) details that a key goal for the research programme is to chart the size and shape of the industry (Creative Skillset, 2008) and pinpoints the connection and contribution of best practice from its work to other SSCs.

The report acknowledges the impact of the *Leitch Review* (2006) for anticipating future skills needs through better understanding of the industry. Along with a very clear remit to provide detailed sub sectorial data, Creative Skillset's research programme covers all four nations in the UK as well as data for the English regions. Creative Skillset maintain that consistency and comparability with data generated by external sources (Creative Skillset, 2008, p.3) is important, including work done by the Office of National Statistics (ONS) and Annual Business Inquiry (ABI), considering comparability across the wider UK economy. Beyond Creative Skillset's work in the nations and regions there are no other comparable standard data sets that explore sub-sectoral information at a regional or local level.

Through the course of this research a consistent dialogue has been maintained with Creative Skillset, engaging with key members of the research team including the Director of Research and Evaluation, Research Manager, and Animation, Computer Games and Facilities Managers. This has allowed for open discussion on the methodology and research design employed, as well as updates on developments, census results and data from Creative Skillset's work in this area. These have informed and help shape some aspects of this study, allowing for some cohesion and comparability in results.

This research project was based initially on Creative Skillset's bi-annual employment census of the creative media industries. Since the inception of this research, there have been several rounds of the census over which time the design has been adapted and refined. 2009 saw the seventh census for the industry and this is the version discussed within this section. The Employment Census offers information on the size and shape of the workforce in the creative media industries including all Creative Skillset sectors, occupational groups, occupational roles within those groups and geographic location information. These sectors are defined as follows:

Television	<input type="checkbox"/>	Facilities	<input type="checkbox"/>	Film	<input type="checkbox"/>	Systems Design/Software	<input type="checkbox"/>
Terrestrial (Public)	<input type="checkbox"/>	Post production	<input type="checkbox"/>	Production	<input type="checkbox"/>	Social Networks/Web 2.0	<input type="checkbox"/>
Terrestrial (Commercial)	<input type="checkbox"/>	Studios & Equipment Hire	<input type="checkbox"/>	Distribution - UK	<input type="checkbox"/>	Broadcaster/Distributor	<input type="checkbox"/>
Cable & Satellite	<input type="checkbox"/>	Outside Broadcast	<input type="checkbox"/>	Distribution - International	<input type="checkbox"/>	Computer Games	<input type="checkbox"/>
Independent Production	<input type="checkbox"/>	System Integration	<input type="checkbox"/>	Animation	<input type="checkbox"/>	Games Development	<input type="checkbox"/>
Community	<input type="checkbox"/>	VFX	<input type="checkbox"/>	Commercials Production	<input type="checkbox"/>	Games Publishing	<input type="checkbox"/>
Distribution	<input type="checkbox"/>	Special Physical Effects	<input type="checkbox"/>	Corporate Production	<input type="checkbox"/>	Games Development Support (middleware, tools and technology)	<input type="checkbox"/>
Interactive	<input type="checkbox"/>	Manufacture of Audio Visual Equipment	<input type="checkbox"/>	Pop Promos	<input type="checkbox"/>	Archives & Libraries	<input type="checkbox"/>
Radio	<input type="checkbox"/>	Processing Laboratories	<input type="checkbox"/>	Interactive Media	<input type="checkbox"/>	Other, please specify	<input type="checkbox"/>
Broadcast (Public)	<input type="checkbox"/>	Transmission	<input type="checkbox"/>	Online Content	<input type="checkbox"/>		
Broadcast (Commercial)	<input type="checkbox"/>	Other Services for Film & Television	<input type="checkbox"/>	Mobile Content	<input type="checkbox"/>		
Independent Production	<input type="checkbox"/>			Offline Multimedia	<input type="checkbox"/>		
Community/Voluntary	<input type="checkbox"/>			Internet Protocol Television (IPTV)	<input type="checkbox"/>		

3.5: Creative Skillset Employment Census Sectors (Creative Skillset, 2009, p.26)

Animation has no sub-sectoral options beyond the main classification. Other sub sectors potentially containing animation activity such as Computer Games do, and VFX sits under the subsector of Facilities.

Below is an example of the glossary of definitions provided for Occupational Groups and Roles. These are all roles that feature the word animation within them:

9. Art & Design	2D Drawn Animation Design	Art Director, Character Designer, Colour Stylist, Production Designer
	2D Computer Generated Animation Design	Animatic Artist (Flash), Art Director, Background Designer, Technical Design Assistant
	3D Computer Generated Animation Design	Art Director, Concept Artist, Layout TD, Previs Artists
	Stop Motion/Stop Frame Animation Design	Art Director, Design Assistant, Head of Art Department, Set Designer, Team Leader Model Making
	Web & Other Interactive Content Design	Designer, Graphic Designer, Information Architect, Interface Experience Designer, User Experience Designer, Web Designer

Occupational Groups	Occupational Roles	Examples of Job Titles
10. Animators	2D Drawn	Animation Director, Animator, Checker, Digital Paint Supervisor, Key Clean Up Artist
	2D Computer Generated	Animator, Background Artist (Flash), Scanner (Flash)
	3D Computer Generated	Character Animator, Effects (FX) Supervisor, Fur/Feathers FX Artist, Lead Animator, Lighting Supervisor, Render Wrangler
	Stop Motion/Stop Frame	Assistant Animator/Stop Frame Animator, Animation Director/CG Animation Director, CG Animator, CG Composer FX, Motion Control Operator
	Visual FX	Compositing Artist, Matt Painter, Modeler, Rigging Supervisor, Texture Artist, VFX Supervisor

3.6 Creative Skillset Glossary of Definitions for Occupational Groups and Roles (Creative Skillset, 2009, p.30-31)

The census is a comprehensive document and can be filled out online, via post or completed over the phone. A representative is required to fill out company name, main and secondary areas of activity (as defined by Creative Skillset sectors & subsectors). This method ensures the census is extremely inclusive with regard to understanding the intricacies of coverage. The census requires geographic location in terms of regional

classification which is defined by counties or boroughs. Once the sector is established, occupational roles and groups can be identified. The census asks that the number of employees within the company working in each of the identified occupational roles be included, as well as the total number of employees in all identified occupational roles. This chart highlights the census data for the animation sector in the East of England:

East of England	Employees (inc. contracts of 365 days or more)					Freelancers (inc. contracts of 365 days or less)					Total (Employees, Freelancers and Contractors)				
	Total Number	Number of Females	Number of Ethnic Minorities	Number of Disabled	Number of Welsh Speakers	Total Number	Number of Females	Number of Ethnic Minorities	Number of Disabled	Number of Welsh Speakers	Total Number	Number of Females	Number of Ethnic Minorities	Number of Disabled	Number of Welsh Speakers
Terrestrial Broadcast	300	150	-	-	0	150	100	-	-	0	450	250	-	-	0
Cable & Satellite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Independent Production (TV)	250	100	0	0	0	0	0	0	0	250	100	0	0	0	0
Radio	1450	600	-	50	0	100	50	-	0	0	1550	600	-	50	0
Post Production	100	-	-	-	0	-	-	-	0	0	100	-	-	-	0
Studios & Equipment Hire	50	50	0	0	0	200	100	-	0	0	250	150	-	0	0
VFX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services for Film & TV	1150	150	100	0	0	100	0	0	0	0	1250	150	100	0	0
Film Production**	50	-	0	0	0	0	0	0	0	0	50	-	0	0	0
Film Distribution	50	0	0	0	0	0	0	0	0	0	50	0	0	0	0
Animation	-	0	0	0	0	0	0	0	0	0	-	0	0	0	0
Commercials and Pop Promos	250	-	0	0	0	100	-	0	0	0	350	50	0	0	0
Corporate Production	50	0	0	0	0	0	0	0	0	0	50	0	0	0	0
Online Content	110	-	0	-	0	200	-	0	0	0	310	-	0	-	0
Offline Multimedia	110	-	0	0	0	0	0	0	0	0	110	-	0	0	0
Other Interactive Media	-	-	0	0	0	0	0	0	0	0	-	-	0	0	0
Computer Games	1250	100	50	0	0	50	-	-	0	0	1300	100	50	0	0
Archives & Libraries	50	0	0	0	0	0	0	0	0	0	50	0	0	0	0
TOTAL	5250	1150	150	50	0	500	200	50	-	0	6200	1450	200	50	0

3.7: Creative Skillset Census Data for the East of England (Creative Skillset, 2009 Census)

* = A value of between 1 and 24

The number of employees working within animation companies in the East of England is shown as between 1 and 24. These employees are not necessarily animators and can include any occupational group/ role as defined by Creative Skillset.

The geographic variation by animation sector shows a comparison in employment across the UK. The difference in employment numbers based on the census data were as follows:

	Wales	Scotland	N Ireland	London	South East excl London	South West	West Mids	East Mids	Yorks and Humber	The East	North West	North East
ANIMATION	400	500	50	850	1,650	200	*	*	50	*	600	0

3.8: Creative Skillset Regional Employment Data for the Animation Sector (Creative Skillset, January 2010, p.93)

Although these figures demonstrate comparative employment within animation companies they include personnel working in myriad occupations. It cannot be assumed that just because the employee is working in an animation company, they are an animator. The data also throws up issues with comparison of nations and regions. Employment data for the East of England, East Midlands, West Midlands falls below 24 employees, and the

North East appears to have no animation companies as there are no employees for this region.

When considering occupational group by Region, we can see the following:

Broadcast Management	100	200	0	0	0	0	0	0	0	0	0	15
Engineering and Transmission	100	0	0	*	0	50	*	0	0	0	0	15
Editorial, Journalism and Sport	400	250	*	*	0	100	50	*	0	0	0	50
Content Development	100	*	0	0	0	0	0	0	0	0	0	10
Art and Design	650	50	*	*	0	100	*	0	0	0	0	75
Animators	100	*	*	0	0	*	0	0	0	0	0	15
Costume/Wardrobe	*	0	0	0	0	*	*	0	0	0	0	
Make-Up and Hair Dressing	0	0	0	0	0	0	0	0	0	0	0	
Camera/Photography	50	*	0	0	0	50	*	*	0	0	0	10
Lighting	*	0	*	0	0	*	0	0	0	0	0	
Audio/Sound/Music	150	*	0	0	0	50	*	*	0	0	0	15
Transport	*	*	0	0	0	*	0	0	0	0	0	
Studio Operations	50	*	0	*	0	*	0	0	*	0	0	5
Technical Development	400	*	*	*	0	100	0	0	0	0	0	50
Editing	100	*	0	*	0	*	*	0	0	0	0	10
Laboratories/Processing	0	0	0	0	0	0	0	0	0	0	0	
Manufacture	200	50	50	0	0	50	0	0	0	0	0	25
Servicing	200	0	50	0	0	0	0	0	0	0	0	20
Libraries and Archives	50	*	0	*	0	*	*	0	0	0	0	5
Distribution, Sales and	250	50	*	0	0	50	*	0	0	0	0	25
Business Management	700	200	*	*	0	100	*	0	0	0	0	75
Retail and Exhibition	0	0	0	0	0	0	0	0	0	0	0	

3.9: Creative Skillset Occupational Group Data for the East of England (Creative Skillset, 2009 Census)

Focusing on animators, it can be seen that an estimation of a total of 150 animators are working across all the defined sectors in the East of England. This is an improvement on previous census data which this study was founded on, and is the first data available relating to the composition of the East of England animation industry. But (as with the 2006 Census) the sector was smaller than 24 and so could not be counted by Creative Skillset (See Creative Skillset Employment Census data 2006): http://www.CreativeSkillset.org/research/activity/census/article_5136_1.asp)

Occupation	Art and Design					Animators					Total (Estimates)	
Role	2D Drawn Animation Design	2D Computer Generated Animation Design	3D Computer Generated Animation Design	Stop Motion/ Stop Frame Animation Design	Web and Other Interactive Content Design	2D Drawn	2D Computer Generated	3D Computer Generated	Stop Motion / Stop Frame	Visual FX		
Sector												
Animation	100	50	100	100	100	150	250	850	100	200	450	1700

3.10: Summary of Creative Skillset Animation Sector Findings for the UK (Jodie Wick, 2010)

The census also provides an occupational group and role breakdown by sector for the whole of the UK. The table here is a summary of the findings in relation to the sector of animation and animation related roles and occupations as defined above:

(Adapted From http://www.CreativeSkillset.org/uploads/excel/asset_14505.xls?1)

This interpretation was available for all Creative Skillset defined sectors and all occupational groups with role breakdowns.

In terms of the animation sector, Creative Skillset provide intelligence on the labour market which offers the deepest level of interrogation beyond the ONS. Headline findings from the 2006 census data note that the UK has over 250 animation businesses (included within the most recent (at time of writing) *Animation Sector Labour Market Digest* (2009). Two fifths of the animation industry were freelancers (38%) out of an employment total of 4,700 (Creative Skillset, 2008, p.1). The newly updated 2009 data gives a total animation sector employment of 4,300 with 47%; 2,000 being freelance and 2,300 being employed. Using the Creative Skillset census data on those working as animators in all other Creative Skillset defined sectors, this research estimates the total number for the 2009 census as 10,350. Remarkably more animators seeming to be employed outside of the actual animation sector. This total is 5.5% of an estimated 188,150 (Creative Skillset, 2009, p3) workforce employed across the creative media industries.

Whilst signalling a move towards a more comprehensive data collection framework at a regional sub-sectoral level and echoing to a certain degree a tandem model this study was investigating at the time (See *Creative Trident Model*- Cunningham and Higgs p.133), there were several issues with the available aggregations of Creative Skillset data. After consulting with the Creative Skillset Research team, exact numbers were established for the take-up on the census in terms of the Animation Sector. 50 returns for the whole of the UK were received and for the East of England there were 3 in total (Muir, K, 18/08/2010). This reveals that the data gathered could not be robust enough for disaggregation in relation to regional occupational data regarding either groups or roles.

Methodology

The ONS houses the main sources of Government data, these official surveys generally offer large samples of respondents (Felstead, June 2009) although still not to the level of detail required for most sectors and subsectors due to the widely used but limited SIC classifications. The ONS maintains a database called the IDBR, which holds information on all businesses in the UK over the VAT threshold (£68,000). It does not include the self-employed and those with a lower turnover. It is updated every two years with data from

Companies House and Dunn and Bradstreet. Official data from the IDBR is only available at 4-digit SIC code level, data is stored to a 5-digit level with text but is only available to other government departments. Key surveys used in data collection include the UK's Annual Business Inquiry (ABI), which was a major source for the DCMS Evidence Toolkit; this survey is sample based and collects SIC data from firms with employees. This survey does not count firms without employees, freelancers or sole traders. The UK Labour Force Survey (LFS) is a more regular quarterly survey of a sample of 60,000 households containing 150,000 individuals; approximately 1 in 400 households in the UK (Cunningham and Higgs, 2008, p.11). An addition to the LFS is the Local Area Labour Force Survey (LLFS) or Annual Population Survey (APS). A common theme with all of the above is that they are based on the most recent (2009) version of SIC or SOC classification systems. Roodhouse, 2006 notes within his work on economic statistical parameters: 'recognition that the Office of National Statistics' (a UK government agency) Standard Occupational (SOC) and the Standard Industrial Classification (SIC) provide a common, imperfect, but nevertheless verifiable structure to collect and analyse data which corresponds with European, North American and Australasian systems'(Roodhouse, 2006, p.19). As examined above, SSCs such as Creative Skillset have had to fill the omissions left by official surveys in order to negate the gaps in their 'footprints':

Cluster boundaries rarely conform to standard industrial classification systems, which fail to capture many important actors in competition and linkages across industries. Because parts of a cluster often are put into different traditional industrial or service categories, significant clusters might be obscured or even unrecognised. (Porter, Feb 2000, p.18)

As Creative Skillset acknowledge within their Research Strategy, there is a requirement to combine both classification systems in order to create more accurate information using the two recognised forms of data collection.

In identifying process, temporal factors feature highly in any research observations. As Pettigrew, Woodman and Cameron note:

The only way to reveal the relationship between multiple levels of context in the interaction field is to have a time series sufficiently long to show how firm, sector, and economic levels of context interact to energize change processes. (Pettigrew et al, 2001, p.699)

Within the Frontier Economics and DCMS work (2001, 2003, 2004, 2006, 2007, 2009) on mapping the Creative Industry supply chain, they identify two key notions of classification;

1) having to be comparable over time, therefore data must be available from sources using the same classifications and 2) that those classifications could be separated into process structures defining activities in the value chain. This would serve to identify and compare how the organisation of these industries and functions are placed and can change over time. This model of depth and longevity is highly valuable when considering the fast moving pace of the industry in question. Although the models previously explored are not conceptually robust in definition, the philosophy of temporal replication will be carried through to the research design for this project.

Within all of the former reports the analysis has contextualised animation within the Creative Industries. Much discourse has taken place around the definition of cultural and creative industries and if indeed these are separate entities, Cunningham and Higgs note:

*There is almost exasperation in Simon Roodhouse's survey of what he calls the 'tortuous and contorted definitional history' of the arts, cultural and creative industries (Roodhouse 2001: 505)
(Cunningham and Higgs, August 2009, p.190)*

The separation of industry and occupational data into pre-defined categories is problematic. Using non-complementary generic frameworks for measurement leads to confusion. Other issues around definition emerge from key organisational overlaps, shifting boundaries and the range in focus and outcome goals of particular studies:

*Government administrative machinery responding to national policy by providing manageable and controllable framework for the allocation of public funds rather than a rational empirically informed inclusive system, hence measurable, thus conforming to the requirements of evidence based policy (Solesbury, W. 2001)
(Roodhouse, 2006, p.2)*

As Roodhouse notes, policy which directs governments in attempts to stimulate or grow the creative industries regionally or nationally, (Hearn, Roodhouse, Blakey, 2007) is often at the heart of data, definitions and quantifications. Markusen et al reinforce this further; 'In policy and planning practice, the choice of an appropriate scale is often linked to the particular problem faced or agenda set by advocacy and policy constituencies' (Markusen et al, February 2008, p.25). Industrial policy tends to centralise interventions at a national level (Porter, 2000, p.27). The lack of identification or reliable regional data for subsectors such as animation support this view. Better data would enable more targeted 'local and

regional policies to address the unique creative assets and deficits of particular places' (Markusen et al, February 2008, p.28).

The traditional approach for measuring the size of an industry would be to count the amount of businesses working in the particular field in question. A simplistic approach to this research would be to count how many animation companies there are in the East of England. This will not produce an accurate result, mainly because not all companies produce an entire product i.e. animation is generally created as content for various applications such as film, TV, mobile devices, gaming web etc. Given the rapid rate of technological development and convergence of industries, animation production is now part of a pipeline including various other activities or companies. Animation is a process - to 'animate' is an activity that leads to the output of animated content. Research would be needed to locate an activity situated within various sectors and to that end, multiple industries.

In attempting to quantify these activities I have considered varying theories and methodologies including the measurement of supply chain (Pratt, DCMS, Frontier Economics) and cluster theory, which examines the inter-linkages and networks of economic activities which serve to grow and sustain a cluster (Roodhouse, Hartley, DeNatale and Wassell). Pace & Hearn (1999/ 2006), and Roodhouse and Blakey (2007) amalgamate these ideas, building on the understanding that value is emergent in various areas of process, and that process is not always linear, therefore identifying that there is a 'cultural ecology' to creative industry activities. This reinforces the importance of quantifying animation as an activity rather than as a fixed industry, given the diverse applications it can be used for. It has been necessary to source a methodology that supplies a mid ground between all of the above and allows for focus on activities that are creative but not necessarily housed within the creative industries. In February 2008 a policy briefing was published by NESTA outlining work originally developed in 2005 for the Australian economy called the '*Creative Trident Methodology*' (Cunningham and Higgs). This methodology brings together current thinking and builds these ideas into a workable model, revealing the extent and contribution of creative professionals working throughout the economy:

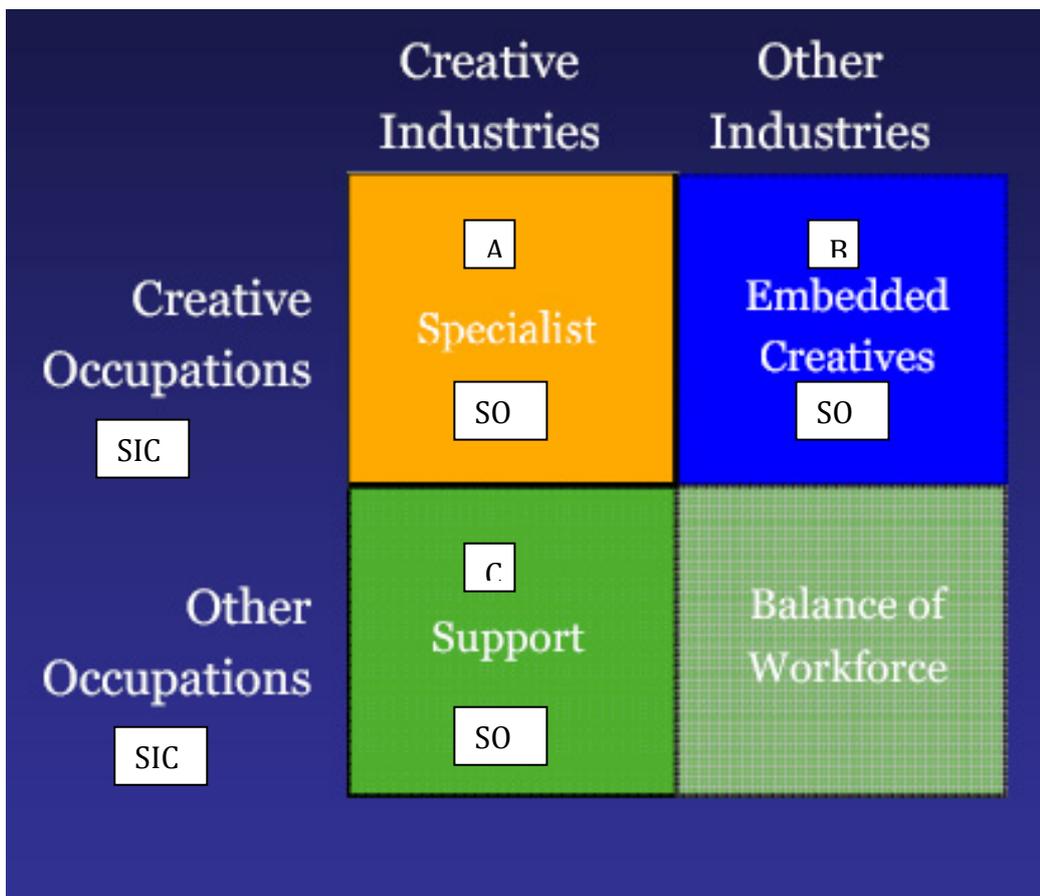
For Policy makers and industry analysts the ability to better understand, measure and track embeddedness is critical in making the

transition from programs that support just the creative industries to those that encourage and promote the Creative Economy as a whole.
 (Cunningham and Higgs, 2008, p.1)

In the use of the term 'Creative Economy' Cunningham and Higgs conceptually remove the definitional boundaries confining creative industries, and formalise the notion that creative occupations can be found working in any area of the economy. The methodology works on the principle that there are three definitions of occupational mode, which can be analysed across every industry:

1. *Specialist mode: Those people in defined creative occupations employed within the defined creative industries;*
 2. *Support mode: Those people employed within the defined creative industries who are not working in the defined creative occupations but perform the essential sales, management, secretarial, accounting and administrative functions;*
 3. *Embedded mode: those people employed within the defined creative occupations who are working outside the defined creative industries.*
- (Cunningham and Higgs, August 2009, p.192)

The basic principle of the model in action looks like this:



3.11: The Creative Trident. Adapted From Hong Kong's Matrix of Mapping employment Data from Population Census (2008)

$A + B =$ total number of creative labour

$A + C =$ total number of creative workforce

The model works best with very comprehensive datasets, which are more freely available in Australia and the US using population data (the number of people employed in each occupation within every industry) (Higgs, Cunningham and Bakhshi, February 2008). The model has been applied in the UK by Higgs, Cunningham and Bakhshi using a combination of population data with LFS data. The model focuses on 'creative and production-related activities' much like the Frontier Economics 'Layer One' defined activities and are classified in a similar way. This prompted me to investigate how the Sector Skills Council mediate their analytical position between Government statistical data, and the granularity of detail required in order to fulfil their remit.

During consultation meetings with Creative Skillset around the development of this study and design of a complementary research system, discussion took place regarding the gap between national datasets using SIC and SOC codes, and the work Creative Skillset carry out within its own census. It emerged that during the first half of 2009 Creative Skillset commissioned two researchers (Jonathan Hirsch and Mike Shillabeer) to commence work on a cross-sectorial mapping document in order to review subsectors in more detail. The templates were considered as a potentially diagnostic tool to 'to help discover patterns of change in our sectors and their subsectors' (Hirsch and Shillabeer, May 2009) The templates were designed as a starting point to look at convergence and process between the sectors, and to encourage discourse within the organisation in relation to the changing nature and blurred boundaries between the different sectors. The design of the templates was refreshing and innovative, considering sectors, subsectors, processes and outputs, encouraging sector managers to pinpoint processes and outputs for their individual areas and suggest potential ways this might be brought together. Much of the design was pioneering in concept but unwieldy in application (Appendix 3.5). In reviewing this initial and unpublished developmental work by Hirsch and Shillabeer, one document emerged from the Director of Research and Evaluation, this was The Creative Skillset/ industry developed occupational groups and roles mapped onto SOC matrix (See Appendix 4.30 for enlarged version):

3.12: Creative Skillset Sector/ SOC Matrix. (June 2009, Unpublished)

This matrix provided an initial formal outline of how Creative Skillset view their classifications for occupational groups and roles against their own defined sectors and subsectors. More importantly within the occupational detail each role had been mapped to the ONS SOC code offering a preliminary bridge between data. The table also clearly and formally highlighted where Creative Skillset see animation activity in relation to occupational roles and creative media industry sectors. In discussion with the Director of Research and Evaluation we agreed that this matrix had parallels requiring development, and could potentially be applied to the *Creative Trident* Model if a suitably detailed level of data could be sought.

In February 2008 NESTA launched a Policy briefing paper building on prior methods implemented through the Creative Economy programme. The paper asserted that ‘Policymakers need robust methodologies to map the creative economy if they are to identify the mechanisms by which creative activities, rather than just industries, support innovation and if they are to consider policies to encourage them.’ (NESTA, CCI, February 2008, p.3). The key message was that in order to understand the real value of creative activities it was necessary to look beyond the Creative Industries to understand how creative activity is embedded within the whole UK economy. While the hypothesis is viable, it only concentrated on the DCMS definition of the creative industries offering no advice on the retrieval of data to nationally recognised definitional units at a refined level of detail. Within Cunningham and Higgs’ paper on *Measuring Creative Employment: Implications for innovation policy* (August 2009) they note definitional and data challenges for measuring creative industries, citing the need for more accurate data on specific sectors. They require detailed definition of roles and industries, and their interlinkage

(paradoxically), due to 'digitisation, convergence, the growth of knowledge-intensive services and services-based economies more generally' (Cunningham and Higgs, 2009, p.191)

There is a contradiction in attempting to define an article whilst acknowledging its interlinkages with other industries. The DCMS Creative Economics Estimates Statistical Bulletins referred to this problem when offering its estimates for the Creative Industries; 'As some SICs contain activity deemed to be outside of the Creative Industries, only a proportion of the total activity within these codes is included in the estimates' (DCMS, 2009, p.13). This signalled the need to quantify 'creative' activities within those industries. The January 2009 report also alludes to analysis of products rather than industries being a potential route forward for this type of Government examination.

This approach was unsuitable for applying to a content creation sector that is involved in final outputs whilst not necessarily creating a whole product. Cunningham and Higgs methodology is a solution to this issue through analysis of input value (i.e. occupations):

This research supports a focus shift in policy terms from an emphasis on creative outputs (the creative industries as a specific sector) to creative occupations as inputs into the whole economy, and creative outputs as intermediate inputs to other sectors. (Cunningham and Higgs, 2009, p. 196)

By reinforcing the notion of cluster design, rather than referring to one industry or even sector, it suggests that creative individuals feed their skills into an encompassing array of linked industries (Porter, 2000):

Strong cross-industry linkages and knowledge transfer mean that the creative industries are more involved in the innovation system of our national and regional economies than has previously been recognised. (NESTA, CCI, February 2008, p.4)

In order to better identify the distribution of animation sectorial activities across the East of England the data collected must be comparable with other regions across the UK. This would enable the research to produce evaluation of its own outcomes and those of other organisations. By investigating these deficiencies, recommendations may be offered that can inform future policy through better measurement.

Chapter 4

The Process of Analysis- applying the theoretical methodology

Introduction

This section deals with the practical methods applied to test the theoretical methodology. The research will deal with the empirical process of developing a data collection framework for the animation sector of the creative economy in the East of England. This will evidence:

- The proposed methodology
- The search for and subsequent verification of Government data

This section will explore how the verification, identification and limitations of information sourced were approached and as such evaluative remarks, relevant theory and parallel findings are discussed in the text.

This form of action research will follow the British tradition. As Kumar (2005, p.109) notes; 'a means of improvement and advancement of practice' (Carr and Kemmins: 1986) the strength of the findings of this research will rely largely on how it is located. The research includes the rationale and philosophical assumptions taken from this mode of investigation. In commencing the data collection stage, the research defines the focus of analysis and its implementation.

It has been necessary apply existing frameworks in order to better understand the animation sector. This provides a source of comparison and replication for potential future temporal assessments.

Parameters had to be developed for the practical phase of this research and I needed to seek guidance on and sources for the indicators before commencement of the applied methodological design. By the nature of the GT research methodology, the practical and theoretical design has been a recursive procedure; gathering information and applying it to the practical process of collecting actual data on the animation sector enhancing the depth of understanding. As an incremental process, moving between theoretical

perspectives, expert consultation and practical application, the findings have been developed in stages.

This chapter consists of three areas of enquiry:

- Detailed investigation of Creative Skillset's census data, considering sector, occupation and region
- The process and application of an independent research method including production of final databases using Government recognised data
- Development of a 'control' census for the East of England

Each section examines the processes employed to locate the available data, and the information extracted from the method of examination. The data outcomes from this work will be discussed in detail within Chapter Five.

Investigating Creative Skillset's Definitional Boundaries

The primary source of data for the animation sector is held by Creative Skillset, whose work offers the best overview of this activity at a national and regional level. The work that Creative Skillset has undertaken presents a good starting point for this study. All Creative Skillset data from this point on will refer to their Employment Census 2009 outcomes, which was the first to be based on a full occupational map of the sectors within the Sector Skills Council's footprint. This allowed for more accurate classification of the industry's sectors and occupations (Creative Skillset, December 2009). Whilst there is a census report, there are also full tables of data available for the four topics listed. The data from these will be expanded on later in this section. The tables contain the following information information (See Appendix 4.38a for data explanations):

- **Occupational Roles by Sector** (Asset_14505.xls- Appendix 4.39)
- **Occupational Group by Sector** (Asset_14504.xls- Appendix 4.40)
- **Occupational Group by Region** (Asset_14503.xls- Appendix 4.41)
- **Region by Sector** (Asset_14506-1.xls- Appendix 4.42)
- **Sector by Region** (Asset_14507-2.xls- Appendix 4.43)

The Creative Skillset census data tables demonstrate how important it is that sector data relates to all occupations working within animation companies. In order to achieve a richer picture, it is necessary to look beyond the animation sub-sectoral workforce to those working in an animation occupational group, across the whole of the UK creative media industries:

UK	Animation subsector	Rest of creative media industries
Animation occupational group	1500	8160- 1500= 6660
All other occupational areas	4300- 1500 = 2800	

4.1: Triangulation of Creative Skillset UK Animation Occupational Data. Data sourced from 2009 Creative Skillset Census excel workbooks diagram by J Wick 2009.

The information has been applied using *Creative Trident* Methodology. By viewing Creative Skillset data in this layout, it can be seen that far more animators (72%) work outside the animation subsector than within it across the creative media industries. Of those working within the animation subsector more than 66% are employed in other occupational areas outside of practical animation. This reinforces the need for further investigation to discover where animators are actually working within the UK industries.

By applying the Creative Skillset data for the East of England to the proposed three-dimensional analysis, it is clear that there is a significant piece of data missing regarding the number of animators working in the animation subsector within the region:

East of England	Animation subsector	Rest of creative media industries
Animation occupational group	?	Approx 150
All other occupational areas	A value between 1 and 24	

4.2: Proposed Triangulation of Creative Skillset East of England Animation Occupational Data. Data sourced from 2009 Creative Skillset Census excel workbooks diagram by J Wick 2009

A maximum of 0.5% of those employed in the animation sector in the UK work in the East of England, whilst 1.8% of actual animators work in varying creative media sectors in the region.

In considering this and given the Creative Skillset data already applied in the table for the whole of the UK, I estimated the number of animators working in the animation subsector for the region. 34% of all those employed in the UK animation sector are animators, and 18% of all animators in the UK actually work in that sector. By applying the UK percentages to known figures for the East of England, an approximate figure of between 8- 27 people are working as animators in the animation sector in the East of England either as freelance or employed workers. These figures were based on best-case scenario data from above of 24 and 150. With the error margin in the data of approximately 50 workers, this meant that there was a 33% chance that these figures could be less than this percentage, and the lowest potential outcome would be between 2-12. Given the empirical knowledge of the

author, it was a lower figure than expected, but it was the most accurate figure to be achieved thus far, considering that when this study was initiated the data was not collected or available. Even if imperfect, it gave some benchmark comparison for the outcomes sought within this research.

This original use of the Creative Skillset data with *Creative Trident* Methodology meant that it was possible to achieve sector breakdown data for animation occupations working in any other sector for the East of England or any other region of the UK. This expanded the level of information available to map the shape and activity of the sector.

Creative Skillset's survey required respondents to select classifications most relevant to their own and their employees' work from given occupational groups and roles. The production of animation fell under the following two groups; Art and Design, and Animators. In terms of what was classified as an 'animator' for the purposes of the 2009 Employment Census, there were 5 occupational roles and associated job titles appended to the census form. 'This was devised in order to ensure that a consistent approach to categorizing staff was taken across the board' (Karen Muir, August 2010):

Animators/ Job Roles/ Examples of Job Titles

2D Drawn- Animation Director, Animator, Checker, Digital Paint Supervisor, Key Clean Up Artist

2D Computer generated- Animator, Background Artist (Flash), Scanner (Flash)

3D Computer Generated- Character Animator, Effects (FX) Supervisor, Fur/Feathers FX Artist, Lead Animator, Lighting Supervisor, Render Wrangler

Stop Motion/ Stop Frame- Assistant Animator/Stop Frame Animator, Animation Director/CG Animation Director, CG Animator, CG Composer FX, Motion Control Operator

Visual FX- Compositing Artist, Matt Painter, Modeler, Rigging Supervisor, Texture Artist, VFX Supervisor

Art and Design/ Job Roles/ Examples of Job Titles

2D Drawn Animation Design- Art Director, Character Designer, Colour Stylist, Production Designer

2D Computer Generated Animation Design- Animatic Artist (Flash), Art Director, Background Designer, Technical Design Assistant

3D Computer Generated animation Design- Art Director, Concept Artist, Layout TD, Previs Artist

Stop Motion/ Stop Frame Animation Design- Art Director, Design Assistant, Head of Art Department, Set Designer, Team Leader Model Making

Web and other interactive Content Design- Designer, Graphic Designer, Information Architect, Interface Experience Designer, User Experience Designer, Web Designer

In order to allow for some comparison of relative groups and roles both occupational groups were initially studied. The following table compares total employment figures, including the sum figures of employees and freelance members for both of the nominated occupational groups and subsequent roles, with all sectors analysed by Creative Skillset for the whole of the UK:

Occupation	Art and Design					Animators					Total (Estimates)	
Role	2D Drawn Animation Design	2D Computer Generated Animation Design	3D Computer Generated Animation Design	Stop Motion/Stop Frame Animation Design	Web and Other Interactive Content Design	2D Drawn	2D Computer Generated	3D Computer Generated	Stop Motion /Stop Frame	Visual FX		
Sector												
Terrestrial Broadcast	0	0	0	0	150	0	*	0	0	0	150	*
Cable & Satellite	0	0	0	*	250	0	0	0	0	0	250	0
Independent Production (TV)	*	*	50	*	100	50	*	50	50	50	200	200
Radio	0	0	0	0	150	0	0	0	0	50	150	50
Post Production	*	*	50	*	50	*	*	350	0	250	150	650
Studios & Equipment Hire	0	0	0	*	*	*	0	0	0	0	**	*
VFX	*	*	100	0	*	*	300	850	0	3150	150	4300
Other Services for Film & TV	650	*	*	0	50	0	*	100	0	*	700	100
Film Production***	0	0	0	0	*	0	*	0	0	0	*	*
Film Distribution	0	0	0	0	0	0	0	0	0	0	0	0
Animation	100	50	100	100	100	150	250	850	100	200	450	1500
Commercials and Pop Promos	0	*	50	*	*	50	*	50	50	50	100	200
Corporate Production	*	50	50	0	50	*	50	50	0	50	150	150
Online Content	50	150	450	*	4250	*	50	150	50	50	4900	350
Offline Multimedia	0	0	100	0	200	*	100	*	0	0	300	150
Other Interactive Media	50	*	50	*	450	*	*	0	0	*	550	50

Computer Games	*	*	200	0	300	0	50	300	0	50	500	400
Archives & Libraries	0	0	0	0	0	0	0	0	0	0	0	0

* = A value of between 1 and 24

**= A value between 1 and 48

***=Does not Include Cinema Exhibition

4.3: Creative Skillset UK Employment. Data sourced from http://www.Creative Skillset.org/uploads/excel/asset_14505.xls?1 Creative Skillset Census Data 2009

Classification groups; the table represents key roles within Creative Skillset defined occupations that relate specifically to the field of animation.

The data in the second totals column reveals that the sectors most populated by animation activities are as follows:

VFX

Animation

Online Content

Computer Games

Post Production

Reviewing online content separately brings associated definitional issues. As a result this study uses a sector classification of interactive media which covers any digital activity including online content, mobile content, offline multimedia, internet protocol Television (IPTV), Systems Design/ Software, Social Networks/ Web 2.0 (As defined by Creative Skillset 2009, Census)- these are all areas where animators may be found to

be working. Post-production is difficult to separate from Visual Effects (VFX) considering that both fall under Facilities within Creative Skillset sectors, but are separated when reporting data.

Television		Facilities		Film		Systems Design/Software	<input type="checkbox"/>
Terrestrial (Public)	<input type="checkbox"/>	Post production	<input type="checkbox"/>	Production	<input type="checkbox"/>	Social Networks/Web 2.0	<input type="checkbox"/>
Terrestrial (Commercial)	<input type="checkbox"/>	Studios &		Distribution - UK	<input type="checkbox"/>	Broadcaster/Distributor	<input type="checkbox"/>
Cable & Satellite	<input type="checkbox"/>	Equipment Hire	<input type="checkbox"/>	Distribution - International	<input type="checkbox"/>	Computer Games	
Independent Production	<input type="checkbox"/>	Outside Broadcast	<input type="checkbox"/>	Animation	<input type="checkbox"/>	Games Development	<input type="checkbox"/>
Community	<input type="checkbox"/>	System Integration	<input type="checkbox"/>	Commercials Production	<input type="checkbox"/>	Games Publishing	<input type="checkbox"/>
Distribution	<input type="checkbox"/>	VFX	<input type="checkbox"/>	Corporate Production	<input type="checkbox"/>	Games Development Support (middleware, tools and technology)	<input type="checkbox"/>
Interactive	<input type="checkbox"/>	Special Physical Effects	<input type="checkbox"/>	Pop Promos	<input type="checkbox"/>	Archives & Libraries	<input type="checkbox"/>
Radio		Manufacture of Audio		Interactive Media		Other, please specify	<input type="checkbox"/>
Broadcast (Public)	<input type="checkbox"/>	Visual Equipment	<input type="checkbox"/>	Online Content	<input type="checkbox"/>		
Broadcast (Commercial)	<input type="checkbox"/>	Processing Laboratories	<input type="checkbox"/>	Mobile Content	<input type="checkbox"/>		
Independent Production	<input type="checkbox"/>	Transmission	<input type="checkbox"/>	Offline Multimedia	<input type="checkbox"/>		
Community/Voluntary	<input type="checkbox"/>	Other Services for Film & Television	<input type="checkbox"/>	Internet Protocol Television (IPTV)	<input type="checkbox"/>		

4.4: Creative Skillset Census Sector Classifications. Creative Skillset Census, 2009

Blue Text denotes Creative Skillset sectors, grey text subsectors

The census was distributed to approximately 26,000 companies held on Creative Skillset's own database, compiled from a variety of sources including previous research participants, trade association membership lists and industry directories. Creative Skillset received 1010 responses either returned by post or online. Notably, Animation had 50 returns for the whole of the UK whilst associated sectors such as Computer Games production had 27 and Visual Effects had 9 (Appendix 4.44).

When considering the figures above it is important to understand how the employment numbers have been generated. Creative Skillset takes all census returns and applies a system of weighting to known company frequencies across the UK to ensure they balance out any areas of over/under response. To quote from the census report:

The estimated percentage coverage of each sector has been used to generate estimates of the workforce in each sector and in the industry as a whole, from the responses received, through the calculation of weighting factors. These take into account all available information about the representation of the response for each sector in terms of numbers and size of companies. (Creative Skillset, December 2009, p. 8)

In discussion, the Creative Skillset Research Manager, Karen Muir confirmed that there were 3 responses from Animation companies based in the East of England, and explained that 'We don't present regional occupational data within any sectors as data is not robust enough at this micro-level'. (Karen Muir, 4th August 2010)

The records held by Creative Skillset in their database of sector specific animation entries were searched to verify whom had received census forms. This allowed me to study the survey response within the parameter of the targeted sectors.

A review of the Creative Skillset Labour Market Intelligence (LMI) for the animation sector reveals that the actual number of Creative Skillset identified animation companies from 2006-2009 was estimated at just over 250 companies in the UK (Creative Skillset, 2009, p1). This figure was taken from the database used as a sample frame for the 2006 census. In 2009 50 companies responded to the Creative Skillset census, but in 2006 there were 148 returns from the 250+ companies that were listed as operating in the industry. The selection of companies is essentially taken from secondary analysis of Creative Skillset's employer database. (Karen Muir, 13th September 2010)

Creative Skillset classify a company within the animation sector through self-definition in their surveys (census returns and employer surveys) and for non-responders they rely on categorisation from the sources Creative Skillset gain the company names/details from.

This is easier in some cases e.g. PACT provide us with member details and these are clearly tagged as Animation but not in others e.g. sometimes we find that local networks that post companies on their website are tagged as Animation when really they are more Graphic Design. It is an iterative process and we learn more each time we carry out a survey. Having said that where the outcome of sector classification in a survey differs from our database we always check the company classification. It is less common that Animation companies incorrectly classify but Facilities companies regularly say they are TV for example so a necessary step to ensure accuracy. (Karen Muir, 14th September 2010)

The commentary above focuses simply on animation company data, this is primarily due to the lack of overlapping information beyond identified sectors such as animation. The majority of data on the animation sector will be found in reports on the animation industry. Creative Skillset company data is obtained from a multitude of data and sources, all of which are verifiable in terms of organisational data. However errors may occur with classification of data, the way a company may be tagged in a directory is subject to elements of human error, the same will apply to all sectors as Karen Muir notes.

The small number of relevant companies identified in the Creative Skillset data prompted me to review at other industry databases such as Animation World Network containing 849 companies (AWN database 2010) Plimpsohl (316 companies, 2010) and Mint (207 companies, 2009). After our discussion the Creative Skillset estimate increased to 627 from 250. Karen Muir noted that Creative Skillset had increased their sources of information but had not amended the boundaries of classification. It was also interesting to learn that by the term 'company' Creative Skillset defines anyone with 2+staff (whether employees or freelancers). They don't include those who are individual freelancers or self-employed 'but of course the odd one or two may have crept in. It is impossible to check every company name individually but as our sector council were happy with the size estimate I don't think there is a huge problem.' (Karen Muir, November 2010)

My investigation of the acquisition of Creative Skillset data reinforced the notion that whilst the method of disaggregation was conceptually the most accurate measure of the animation sector, the method for finding companies to initially survey was flawed. Such a

variation between company numbers is demonstrably extreme and will undoubtedly affect temporal analysis of findings. It appears that through not using a fixed source to seek companies, there is no predetermined measure for how many companies may actually be operating in the UK creative media industries. Theoretically even if Creative Skillset got a return from every single company on their database, we still have no idea if this is a high enough percentage of UK registered firms to constitute a suitably weighted sample.

The data for 2010 has been verified by the Creative Skillset research team and by Sectors representatives and this may be more accurate than 2009 findings. With no definite comparisons to base the precision of figures on, there is still some way to go. Until better returns are made overall, the regional company data will continue to be scarce. This makes it significantly difficult to create reliable forms of breakdown in order to identify which sectors contain the most animation activity or employment.

As Creative Skillset is the nationally recognised measure for the animation industry in the UK, and in order to ensure some coherence in definition of sector and comparability of data achieved, their sector parameters have been used in testing the proposed methodology. Classification and application of this forms part of the ensuing process analysis.

Iterative and emergent process of final analysis design and application

Obtaining and Testing the Data

An accessible source of data was sought that contained publicly available, Government-recognised data. This would define the activities through collection of sector based economic and demographic statistics, from a fixed source with the capacity for longitudinal/ temporal analysis. This study has sought to confirm the parameters of what animation is identified as for the purposes of data collection- subsequently a unit of measurement. The standard unit of measurement used would normally be the Standard Industrial Classification (SIC) system. This is universally agreed to be more comprehensive and extensive than Standard Occupational Classifications (SOC) and is the method commonly used to develop sector based economic and demographic statistics. Animation cannot be comprehensively isolated within this system, so an enhanced source of data was sought.

Following attendance at the Creative Regions Conference in Southampton (2008) and engaging in dialogue with Lisa Shearer (Senior Research Consultant at Trends Business Research) it transpired that her company might be able to provide access to a more comprehensive form of data, as well as a standard data set relating to the universally recognised SIC definitions. Initial exploratory work in 2009 was undertaken into Trends Business Research (TBR) data resource. This database (Trends Central Resource-TCR) is built on fifteen years of six-monthly data updates from Dun and Bradstreet (D&B). This source is updated directly from Companies House, the Thompson directory and D&B's own in house data gathering team.

TCR is a more comprehensive source of business data than publicly available data sources, such as the Inter-Departmental Business Register (IDBR) (For example, TCR holds information on non-VAT/PAYE registered companies whilst IDBR does not). This information on freelancers and sole traders if they register themselves (i.e they fall above the VAT threshold), comes from Companies House and the same categorisation system happens irrespective of legal status, or (if they are below the VAT threshold) the data comes from one of D&B's other data providers. A main data source is the Thompson directory, within which companies will classify themselves on entry. Also D&B conduct their own validation by contacting companies directly. This is also how TBR get the business activity descriptions. These are not always correct, therefore all data will need to be checked and verified. The inclusion of freelancers is extremely important considering Creative Skillset figures assert that 47% (Creative Skillset, 2009) of the animation industry were freelance. The TCR is made up of over 3.5 million individual live business records, containing information such as SIC codes for each record, detailed business activity descriptions, employment figures, financial and legal status (e.g. sole trader, partnership, limited company) address and postcode information.

It is estimated that there are approximately 5 million live firms at any one time across the UK. TCR is not a census of UK business activity, but it does provide a significant sample from which to undertake analysis. Although it was clear that this project would not be able to capture all animation activity, it would identify a significant proportion of it within clearly defined boundaries. Additionally it would enable specific demographic animation activity to be isolated for analysis, something that has not been achieved, or attempted, previously.

Information directly attainable from the TCR data, included individual firm records that could be identified by looking at the company name or at the company's unique business identifier activity descriptor (Line of business, LOB):

The LOB describes what the company does, many of these fall under uniform descriptions such as 'wrought iron worker' due to the way Companies House collect their data. However, some of the LOB's are totally unique as a company may not consider its activity to come under any generalised description so then unique LOB's are entered. This shows how we (TBR) can analyse industries below 5 digit SIC definitions. We also store addresses and postcode so the precise location of business can be identified and postcodes used to set boundaries in which you may want to look for companies in. (Shearer, L, 2009)

Within this dataset, the Line of Business (LOB) information offers an additional dimension to the data. Companies ultimately define their own LOB mainly through submission of a survey that all companies should complete (including sole traders) to Companies House. In order to make the data more uniform there are predefined LOB options for companies to choose from when defining their business activity, so that companies which have similar profiles can be recognised as such. If a company feels that they do not fit into a standard LOB category they can define their own. The database therefore contains an enhanced understanding of the company activity through the inclusion of an SIC code plus LOB.

Initial Exploratory Work

The initial exploratory work was designed to test the database and to develop a definition of the animation industry through identification of a number of key words that were likely to represent common business activity descriptors (LOB) or company names in the sector.

A short but robust methodological approach was taken to test the data for this project, which included the following steps:

- Extraction of all potentially relevant records from TCR for the UK that fall within any SIC that an animation business could be categorized in. These were developed from defined SIC footprints identified within previous studies (reviewed in Chapter One).

SIC (2003)	SIC Activity
92.11/1	Motion picture Production on film or video
92.11/1	Animated film production
92.11/1	Cartoon Film Production
92.31/9	Cartoonists
36.50/1	Games for professional and arcade use (manufacture)
36.50/1	Games (automatic) machines (manufacture)
92.11/9	Post production film activities
22.14	Sound recording publishing (manufacture)

4.5: Potentially Relevant SIC Categories for Animation Activity. Jodie Wick, TBR (2009)

- A further extraction was then applied to the TCR database, this time through application of 'animation key words' to the records. Here is the list of test words selected, applied to both company name and line of business (LOB) descriptor:

Primary key words	Secondary/ associated words (more context/ application based)
Animation	CGI
Animate	Broadcast, Film, TV, advertising, education (context)
Cartoon	Pre- visualisation
Moving Picture	Scriptwriting
Motion graphics	Sound design/ voiceover/ lip sync (specific for animation)
VFX (Visual Effects)	Games design/ animation and games
Storyboarding	Interactive content
Character design	Animation and Web design
Animation 3D- Maya/ 3D Studio Max	Technical illustration
Animation 2D- Cel Animation, 'Drawn animation'	Animation incorporated into games
2D/3D Computer Animation	Interactivity
Compositing	
Flash/ Adobe Flash	
Stop motion/ stop frame- model making, puppet making, puppetry	
Motion capture	
3D CGI	

"Special visual effects"

Real-time simulation

4.6: Animation Key Words. Jodie Wick, TBR (2009)

- The two databases (SIC and key words) were then joined together to produce a database of all potential Animation businesses in the UK.
- The data was 'cleaned'- this was carried out manually in order to remove erroneous records.

The data outcomes of this study can be viewed in Appendix 4.1. The initial outcomes were diverse from both a methodological and sectorial perspective see review below of details from headline excel data (Please see Tab S4 within Appendix 4.1):

Table 1 and 2- Firm Employment totals

The identified data was flawed, as true comparisons could only be made by multiplying the average employment figures by firm totals. In this case, where available data was used, employment could seem higher because there may be more information available for some regions than others, likewise regarding turnover.

Table 6: SIC Distribution

This table provided evidence of where key word identified companies would be situated in terms of their SIC classification. Companies are allocated a SIC when they are registered at Companies House, based on the description of activities they give matched to the most suitable SIC. The initial search had not turned up a notable number of SIC codes relating to Computer Games. Formal classification for this activity was unlikely to exist as an accurately defined SIC, because the SIC system underwent a major update in 1992 and then was revised in 1997 and 2003. At this time there was not a large enough industry to be recognized as a sector in its own right.

The research revealed issues that required refinement or re-visioning. In order to address the initial lack of computer games companies in the first cut of the data. The second iteration of the database (See Appendix 4.2) included additional checks of the whole database using direct and indirectly related words. The entire TCR database was re-

examined using a list of missing games design production companies, selected as known producers, along with recognized animation companies from the author's own database produced through her previous ethnographic research (See Appendix 4.3). Many of the companies missing from the first round of research were found to be available from the data but had not been located due to varying and non-specific SIC codes, non-defined and non-discrete keywords which hadn't identified the company from either its name or LOB description. Other issues were discovered relating to the use of key words more closely linked to animation. Certain key words, most notably 'cartoons' identified many illustrators and few animators, but it was considered that the term 'cartoons' was not one that most professional animation companies in the UK appear to want to be associated with. It might be applied to companies by outside parties with less experience of the industry.

A key development from the first round of data collection was the result of broadening the definitional boundaries of animation. But by doing this the study risked branding all activities related to the subsector as animation activities. This could defeat the purpose of this research by creating an inaccurate interpretation of the sector. The design of the study must allow for the fact that animation is a subsidiary of other more significant sectors. In trying to locate producers of computer games within a search for animation companies, the initial method of classification was in danger of identifying computer games as a subsector of animation. It was more accurate to classify animation as a subsector of computer games. The database needed to be built in a way that possessed the potential for breaking down into subsectors. This would highlight companies whose core output was animation, and associated companies such as computer games who use animation as content within their final product. This hypothesis was further reinforced by Creative Skillset data from 2009. The Creative Skillset Games, Animation and Facilities Manager notes this point with this study, whilst in conversation:

...The Games Industry = approx 28,000 personnel, Animation = 4,700 personnel. There is another interesting characteristic regarding the issue we've talked about before- Games production and Animation's place in it. Animation is a very freelance industry, (two fifths) and the Games Industry isn't (only 8% are freelance). (Creative Skillset figures) Sorry to go on about Games, but from where I sit Games and VFX could be seen to be major pillars of Animation production, especially since the collapse of Children's programming because of changes in Advertising regulations (an estimated loss of 38 million in advertising revenue has knock on effects for UK Animation) (Saint John Walker. (2009) [Conversation about first stage of data collection] (Walker, 2009)

This statement underpins the need for accuracy in defining parameters of animation activities. In this case animation related activities could be marked and separated through classificational boundaries as well as LOB, key words and selected relevant SICs. It was essential that key areas of industrial activity where animators could be found to be working were identified but not classified within the sector of animation. This need now brought the three dimensional analysis of the *Creative Trident* process into practice.

Stage One

The introduction of UKSIC 2007

In the intervening period between the exploratory work conducted in 2009 and the next stage of methodological testing (2010), a new SIC system, the first major revision since 1992, was introduced, with UKSIC 2007 replacing UKSIC 2003. This provided what was hoped to be a more up-to-date classification system deemed necessary to identify the sectors being considered within this study. In redefining the classifications it was hoped that SIC 2007's introduction of a major new section (J- information and communication) would improve identification of relevant activity. The main components were:

- Publishing activities, including software publishing (SIC 2007 Group 58)
 - Motion picture, video and television programme production, sound recording and music publishing (SIC 2007 Group 59)
 - Programming and Broadcasting Activities (SIC 2007 Group 60)
 - Telecommunications activities (SIC 2007 Group 61)
 - Computer programming, consultancy and related activities (SIC 2007 Group 62)
 - Other information service activities (SIC 2007 Group 63)
- (Adapted from the UK standard Industrial Classification of Economic Activities 2007-SIC (2007) Summary Structure, 2009. P, 44-46) Please see Appendix 4.4 and 4.5 for full class and subclass information)

Having one dedicated section for these activities and acknowledging the overall move to more service-based activities, meant that there was consistency for grouping these related sectors. In the previous SIC 2003 these activities had been included in diverse sections such as manufacturing, transport, storage and communications as well as real estate, renting and business activities etc. John Hughes (Office of National Statistics) further reinforces this development in his feature article on the implementation of SIC 2007:

...The introduction of SIC 2007 reflects the growing importance of service activities in the economy over the last 15 years, and in particular the developments in information and communication technologies (ICT)
(Hughes, Aug 2008, p.41)

Of specific interest was the separation of animated film production (UK SIC 2007 59111) from animated video production (UK SIC 2007 59112)- both previously UK SIC 2003 92111, showing the first marked division in the identification of key area activities within SIC codes for this study.

Considering the best possible available data up to this point, this study continued to include the SIC codes for initial separation of data for the first part of this methodological test. Although the new classification system (SIC 2007) had been available for a considerable period by this time (May 2010) most main datasets* had not yet been updated or converted over from SIC 2003. Given the reasoning behind Creative Skillset's use of census data, due to the inflexibility of previous SIC classifications, it was agreed that an essential, if time consuming aspect to this study must be to use the SIC 2007 framework. The process of converting and updating TCR from SIC 2003 to use SIC 2007 was undertaken by TBR. This was the first piece of research to be conducted by the economic research and strategy consultancy using the new system. During an extended period of focus (May 2010-September 2010) I identified problematic SICs in the TCR data, and shared this knowledge, enabling TBR to resolve issues in that selection. During this phase a broad but comprehensive list of all potential SIC 2007 codes that may contain animation activity were identified from over 15,600 classifications in SIC 2007. In creating the initial list of SIC codes for exploration, further documentation was sought on the application or comparison of SIC2007. Information from Creative Skillset's Strategic Skills Assessment for the Creative Media Industry (Creative Skillset, December 2009) showing employment estimates from the Labour Force Survey using SIC 2007 (April-June 2009), were compared to those from Creative Skillset (Appendix 4.6). This provided additional guidance on SIC codes as well as compared datasets from LFS and Creative Skillset's Employment Census 2009. The gaps in the table show continued failings in detail of the updated SIC system. It allows for review and comparison of located issues in relation to the creative media sector.

***NOTE:** Companies House Data moved over to the new system on 1st October 2011, ONS began to implement SIC 2007 from June 2010

Further guidance on comparative SIC 2007 for related sectors was sought from the Creative Skillset Research Strategy for the Creative Media Industry 2008-2011 (Creative Skillset, Revised April 2010) which provided SIC codes relating to all Creative Skillset defined activities (12 sectors) including division, group and class but, no subclass (See Appendix 4.7). Finally, to ensure a complete range of activities was considered, advice was also sought from neighbouring Sector Skills councils who may also have a share in supporting digital skills provision associated with animation production. The E-Skills UK report (2009) was found to offer a less comprehensive table of SIC 2007 coverage, however there was some guidance on sector overlap (See Appendix 4.8).

From the above sources, the UK SIC 2007 (See Appendix 4.9) indexes were reviewed and an excel sheet constructed. Selections were made right down to the subclass, with an aim to provide as much detailed information as possible. In some cases, guidance was sought from the Sector Skills Council and from collaborators at TBR for clarification and interpretation of activity descriptions that accompanied the SIC. Instinctively, the study avoided manufacture but included a lot of design activities considered to contain relevant businesses. The previous test study was also considered, through review of key SIC 2003 codes and conversion to SIC 2007. Please see Appendix 4.9 for the final SIC 2007 selections, these are cross-matched against their previous SIC2003 classification for ease of conversion within the TCR database. On completion of the list, TBR used the SIC 2007 codes in order to select all company records from the TCR database. This resulted in the creation of an initially very large database of company records registered within the selected SIC Classifications.

Key Words

The next stage was to build on the original key word search list and method to refine and isolate the relevant activity where animation would take place. It was intended that this process would remove erroneous records and begin the process of isolating the activity. A 'long list' of key words was developed using a combination of the author's knowledge and TBR's expertise in dealing with data, to identify as much relevant activity as possible. It was essential that the key word search contained words that related to animation as a process or activity through descriptive labels that would identify a broad range of companies who may undertake animation work or employ animators. Findings from the previous test study were reviewed and common descriptive words for various activities were identified. Even at this level of analysis, it became clear that how an animation company is defined is subjective, and goes back to the vertical dis-integration issues (Pratt, 2010), the notion that companies will work within co-productions or in partnership with other companies. One company may be responsible for the preproduction and another company for the production. The 'long list' was developed to be sufficiently flexible to reflect and allow for these issues.

In terms of identifying the animation sub-sectoral footprint and related variable cross-overs, key words that would define animation companies and other key words that would identify

companies that employ animators were sought. In order to avoid over-collection of data; including companies that may not account for large volumes of animators i.e. car manufacture, it was agreed that at this stage definitions needed to relate only to the creative industries. For this reason it was decided that DCMS Layer 1 creative activities were a good guide for what should be included and excluded. The key words were looked upon as descriptive labels – what is included in the activity of animation and what might be picked up from related companies. The long list key words were considered in conjunction with a list of example ‘test’ companies built from the previous test study, the author’s own ethnographic database, built from 2006-2009, liaison with a range of suggested industry experts including a freelance digital 3D animator (Gideon Corby), Sony Computer Entertainment Europe (Maria Stukoff), Academic staff at the then Norwich University College of the Arts (Mark Wickham- Lecturer in Games Art and Design, Professor Suzie Hanna- Chair of Animation Education), Cambridge Wireless (Theresa Fagg) and Creative Skillset Animation Games and Facilities Manager (Saint John Walker). The initial list was expanded to include programming that creates animation, programming language or key terms that would imply animation is being created such as C++, C#, Microsoft XNA, particle systems, dynamics along with other key words and terms such as animatic, interface design and vector graphics (See Appendix 4.11 for long list).

Along with the key words a classification system was devised through a simplified version of the Creative Skillset sectors and subsectors initially identified as containing animation activity through the cross sector mapping exercise (2009) (Appendix 4.38):

- **Full Animation content** (input/ output, i.e. TV series production, commercials and feature film) Core of their business contributes to production of animation- these may be disaggregated further dependent on the results of the data search
- **Computer Games**
- **VFX**
- **Interactive media**
- **Facilities/ support**
- **Distribution**

These activities were kept as broad as possible for the initial key word search with the intention that companies would be classified once the database search results were obtained. The database search results would be based on key words applied to company

name, line of business and SIC. These initial activity classifications served as a 'control' to test the TCR data search, and as a launch pad to seek advice from the advisory team.

The classifications were also used for comparison with associated organizational data eg UK Trade and Investment mapping work on UK based computer games and digital media industries, for which companies personified these categories. Examples of companies were sought to represent each of the above sectors. These were reviewed, added to and refined by the advisory panel, most notably removing games publishers (Appendix 4.12).

In developing the company list, further consideration was given to the diversity of their outputs and with very few companies having one specific production specialism (either platform, genre or animation type) it was considered that it might be necessary to adapt any classification system to have 'tags' so that one company could have more than one 'tag' associated with its activity. It was decided that these test companies would be sought within the TCR database. Identifying factors would be reviewed (SIC, LOB and key words) which would then offer a guide for categorization and application of terms under the classifications for the final company search.

Iterations of the Company Database

It was agreed with TBR (in 2010) that for ease of comparison, data would be sourced from 2009 TCR records. This would match with the same time period of the most recent Creative Skillset census data available, and original exploratory regional work undertaken by the author in identifying companies in the East of England.

The key words were used to search through the firms identified on the initial database and began the process of isolating relevant animation activity. This refinement was achieved through searching for specific words (or 'terms') in the fields on the database that describe the business name and specific business activity for each record.

Due to the broad coverage of the SICs included when the initial database was created, this process identified a lot of irrelevant firms (e.g. accountants). Therefore, a list of keywords and business activity descriptors were also generated that were definitely not animation related. Those key words and descriptors could then be used to identify and remove

irrelevant records from the initial database. Appendix 4.13 describes in detail the content of the first iteration of the database (Appendix 4.13a).

In approaching the removal of particular LOBs a certain amount of caution was applied. The process was considered to be very subjective and dependent on the interpretation of the descriptions. General comments were as follows:

- Advertising may turn up animators working in this field so best to leave for now, however the selection was heavily refined in relation to this descriptor.

- 'Graphic Arts and related' along with 'children's film distributor', suggest leaving in for now and see what we get

- Large amount of 'Graphic Designers' entries have been removed

- 'Marketing and Design' as well as web design are frequent but again could also turn up animators so would like to leave some entries in for now.

- 'CAD' was difficult too but I have been selective

- Slightly concerned by the lack of animation or computer game and variation of word entries at this point.

- There are also a lot of old fashioned descriptors showing interestingly how technology has moved on since those entries were made

- Activities such as 'not ascertained' should also be kept in the database for the moment as they may contain animation related businesses. To narrow these businesses down, a detailed search should be carried out on the name of these businesses using specific animation related parts of words/phrases that are likely to appear in animation businesses' names. These specific words could include:

Animat , Rotoscop, Storyboard, Stenograph, CGI, C.G.I, Computer generated imag, Stop motion, Stopmotion, Stop frame, Stopframe.

-A review should be carried out on words or phrases that most commonly appear in animation related business names.

It was noted that 'wedding' or 'wholesale' seemed to be a frequent entry and any businesses that contain the words in either their name or line of business description should be removed.

(Adapted from Shearer, L, and Wick, J, August 2010)

To form the database at this point individual key words had been used as search terms to ensure that the search was as broad and inclusive as possible. The next phase was to

reduce the database through the combination of some of the key words and refinement of the search terms. LOBs that were not relevant were removed (as per the list developed above) and a refined search combining key words such as + cartoon – illustrator was carried out. Where the LOB wasn't known, a detailed description search was undertaken using the company name entry.

Refining and segmentation

The next iteration of the database continued to produce a notable number of records that were still not relevant - most obviously some of the 'Nulls' and 'Activities not ascertained' in the lines of business (of which there are 3,037 records) (Appendix 4.15, tab S1). Deciding how best to manage these, to keep the animation-related activity but also ensure that the methodology used to refine these was robust and replicable, caused some delay in the project. An initial resolution was to commence the segmentation process. Within the workbook in Appendix 4.15, tabs S2 and S3 are there to aid the segmentation, and S4 is an example table, which was primarily devised for completion to form the animation segments. S2 details the final lines of businesses in the database and information about the search terms used to identify these. S3 details the key word search terms initially used by TBR. These were the key words that needed to be grouped into segments. S2 is there as a guide to show what type of business activity is identified using the different types of search terms.

At this stage it was agreed that unique key words needed to be assigned to the different segments as per the example in S4. If it were then found that it left some activities too grouped together, further refinement would be carried out later in the project after the method had been tested. The initial segmentation search terms devised would then be applied to the line of business and company name that would account for the 'Nulls' etc. The specificity of the key word breakdown in S4 was then intended to identify animation related activities within each of the companies, allowing a greater distinction of the key words beyond the previously explored Creative Skillset Sectors. On practical application of this process it was found to be overly complex and impossible to define activities without a set structure, returning to the diverse outputs of specialist and related companies on the database. A company may sit in several categories and with so many categories available, the risk of double counting was incredibly high.

Revisiting the Creative Skillset census classifications (p.48) and the segmentation

framework (p18) I noted that the way the data is presented for the census outcomes removes all subsectoral boundaries as visible on p7:

Sector
Terrestrial Broadcast
Cable & Satellite
Independent Production (TV)
Radio
Post Production
Studios & Equipment Hire
VFX
Other Services for Film & TV
Film Production**
Film Distribution
Animation
Commercials and Pop Promos
Corporate Production
Online Content
Offline Multimedia
Other Interactive Media
Computer Games
Archives & Libraries

4.7: 2009 Census Data Classifications

It was agreed that the segmentation process should remain with the Creative Skillset sectoral classifications (Appendix 4.16a); the main proposition being that all the companies on the database potentially have animators working within them. The segmentation process was intended to identify the relevance of the industry activity in relation to proportions of animators employed in those segments at regional level. By using the Creative Skillset classifications this would add comparability and cohesion in results.

Initial segmentation classification proposal:

-Full **Animation** Content (i.e. Television, commercials, feature film, pop promos) core of their business contributes to animation production. Most companies are difficult to separate and so it was thought this is the best way to classify them for now)

-**Computer Games** (Games Development only)

-**VFX** (plus **Post Production** for now)

-**Interactive Media**

-**Online Content**

-**Mobile Content**

- Offline Multimedia*** These may merge
- Facilities/ support** (For Full Animation Content)
- Distribution** (For Full Animation Content)

These are far less prescriptive than the original example, but would still enable removal of those companies that didn't have any relationship to animation from the initial database.

To sort the keyword search terms into classifications, several cycles of refinement were developed. Within the next workbook version (Appendix 4.16), tab S2 demonstrates a large amount of LOB's discovered through the search criteria that read as having lesser or no connection with animation activities. This was understandable given the methods applied in order to keep the search deliberately broad within this stage of filtering. The key words in this next stage would be combined to refine the database but also to classify activities and segments. The original lists of key words (Jodie's words, tab S3, Appendix 4.16) were those that were applied to this process. There was no maximum number of words that could be associated with each classification but, in order to keep the refined searches manageable, usually no more than four. Words that were no longer relevant were placed in a 'redundant' words list to be removed from the database (Tab S5, Appendix 4.16). The original 'key words' could be classified as phrases or terms; for example 'Animation Pre Production', if the word Animation is taken away the term becomes more generic 'pre production' and could relate to any area of creative media production rather than just animation. In order to classify segments of the database, the process required that specific terms matched:

Step 1.

As an example, data that contained keywords 'animation and production' could then go straight into the Animation Production segment.

What to do with anything else that has the word 'production' in it but not 'animation'?

Step 2.

Either decide- unless it is animation and production, forget about it, it's not of interest, then remove all the other instances of production.

Or...

Keep it, but in a peripheral segment.

As such, a list of keywords to associate with production would need to be created that would ensure associated terms were kept within the database and classified correctly. If for example the study wanted to keep film production, TBR would need to search for anything left, having already selected out animation + production, with keywords film + production and remove all other instances. This would then leave two clear segments, animation production and film production, with no overlap between the two. Any record of production without animation or film keyword would be removed. Having developed this method, the classifications within the database were allocated either as 'core' or 'peripheral' in terms of relationship these activities had to this study. Some more generic additions were made in order to capture any other activities - these could be checked, filtered and removed later (Appendix 4.16, tab S4). These were refined even further, (See Appendix 4.17, tab S4 and S4a). This was done for several reasons; keeping the segmentation deliberately broad means that missing companies can be more easily identified. It also allows for further less complex disaggregation continuing to use the 'key word search' method or simply looking at the LOB.

Reviewing this cut of the data, the initial 'test' companies (Appendix 4.12) were sought and those on the database identified (Appendix 4.17, tab S6), those missing were sent to TBR for identification. In order to confirm key words, the 'test' company examples that had already been broadly classified by the 'expert panel' were used as search samples (Appendix 4.17, tab S1). If the company was there, the 'Line of Business Raw' was checked against tab S2 and related back to the original key words/phrases to see which segmentation classification those words would fit. As an example, it was known that 'Ubisoft' was a Computer Games Developer from the 'test' company examples. It was searched for in S1 and its LOB Raw was found to be 'Entertainment software developing' and in S2 that related to the original key words as 'Software, Entertainment Software Development'. As these key words were associated with identifying a company known to be based in the computer games subsector, these key words were then placed in the table (tab S4a) as 'entertainment & software & development' to only be used in combination, as either word used on their own would turn up irrelevant entries.

This method of identifying key word combinations worked in theory; in practice there were

several issues in applying this process of segmentation to the data. TBR therefore stressed that combinations should be used minimally and by exception rather than rule because they caused complications within the segmentation of the database. For example the inclusion of 'animation & design' under the 'animation' classification and then 'webdesign and animation' in the interactive media classification, made it difficult to separate data, as ideally all terms with the key word 'animation' in, would hierarchically go in the 'animation' segment. Within the search terms, clarity of the core activity of the segment was essential. If used in this way 'animation' would be a unique keyword, because it would not appear as a keyword in any of the other segments. This would mean the database could be searched, and any record that had 'animat' (to allow for different endings, animate, animated, animation and so on) would be definitely animation. Therefore it would need to be only in the 'animation' segment and could not appear in any of the others. This posed an issue in the method design as the initial search criteria was to find companies that create animation that might span different sectors. Therefore an entry such as 'interactive' would be used as a unique keyword, because it appears in the 'interactive media' segment. However, anything that had 'interactive & animation' in would be in animation, because the presence of the word 'animation' would override the presence of the word 'interactive'. With this example, it demonstrated how essential it was to understand that the company produced animated content, but in segmentation, that animated content was associated with interactive outputs. It was agreed that this more labour intensive process of discrete word identification had to be used in the distillation of data to ensure the most accurate classification.

Other issues encountered at this stage were with companies which lacked identifying key words for segmentation. For example, Skyline Imaging Ltd, West Sussex, was acknowledged by the advisory panel to be a VFX company, it's LOB Raw was 'Film Production-TV' and there were no key words in the entry to differentiate it from a TV and film production company. In addition key words such as 'leisure' brought up irrelevant entries, along with several other individual words noted in tab S5, Appendix 4.17.

Upon review the key words were further updated (See Appendix 4.18, tab S4a) using the methods outlined above for both the computer games and interactive media subsectors. A specific challenge relating to the segmentation of the company database was that a number of the keywords in the computer games and interactive media segments were too

broad and were inflating the size of the database (Appendix 4.18, Tab S1 company database). On running a test search of the data it was agreed that the keywords used to identify interactive media and computer games were too generic (and returning a lot of records that were right on the edge of the search criteria).

This method would not be effective without manual sorting of the records, making the process irreplicable. A solution was sought and it was agreed that the newly updated SIC 6201 (definition provided in full below) should contain a more refined scope/search parameter of all relevant computer games and interactive media activity. As such, it was decided to narrow the scope of the search to look for records only in SIC 6201.

It was initially anticipated that the predefined sub-sets within SIC 6201 (6201/1 and 6201/2) would be sufficient to split the data; with 6201/1 equating to computer games and 6201/2 equating to interactive media.

When validating the firms encapsulated within the predefined subsets of SIC 6201, there was so much commonality between the records in 6201/1 and 6201/2, it became clear that the data was not as well defined by the SIC system as implied by the detailed description in the National Statistics SIC manual.

A good deal of business activity (c.15,000 records) was identified, most of which was not relevant to this work. This included businesses that were described with such generic company name/ business activity descriptors that they could not be identified specifically as being part of the search footprint. Examples of records in the 6201 SIC that led to the conclusion they employed no animators included:

- Computer programming & software services
- Software engineering
- Pre-packaged software
- Software enterprise
- Software house
- Accountancy software

TBR, Jodie Wick (May 2011)

This meant that rather than using the keywords to search across various SICs to identify relevant activity, the key word search was confined to a single SIC. The words used were a combination of those developed by the author and those identified within data searches by the TBR team. This enabled the production of firm and employment 'coefficients' that

describe the proportion of activity within SIC 6201 that is relevant to computer games and interactive media.

By applying this process it leaves a proportion of activity within SIC 6201 that is not ascribed to either computer games or interactive media, because the records do not contain a keyword (described here as 'not relevant'). The assumption is that they are relevant to one or other, but the lack of detail available about the company makes it impossible to say which.

SIC Definition

6201 - Computer programming activities

This class includes the writing, modifying, testing and supporting of software.

This class includes:

- designing the structure and content of, and/or writing the computer code necessary to create and implement
 - systems software (including updates and patches)
 - software applications (including updates and patches)
 - databases
 - web pages
 - customising of software, i.e. modifying and configuring an existing application so that it is functional within the clients' information system environment

This class excludes:

- publishing packaged software, see 58.29
- translation or adaptation of non-customised software for a particular market on own account, see 58.29
- planning and designing computer systems that integrate computer hardware, software and
- communication technologies, even though providing software might be an integral part, see 62.02

6201/1 – Ready made interactive leisure and entertainment software development.

as the development, production, supply and documentation of ready-made interactive leisure and entertainment software, such as games software, designed for publication by a different enterprise. A key component part of the software is audiovisual content with which the user interacts. The software can be published across any format, such as games consoles, the internet and mobile phones.

62.01/2 - Business and domestic software development

This subclass excludes:

- Ready-made interactive leisure and entertainment software development, see 62.01/1

4.8: SIC 6201 Definition. TBR, January 2011

TBR segmented these activities by their 5 digit SIC codes. The activity in each segment was verified by running key word searches on the results. This was to check that no computer games companies were in the interactive media segment and vice versa, as far as activity description could be determined on TCR. The keywords used to identify computer games and interactive media activity are found in Appendix 4.17a.

Calculation of Coefficients

This approach allowed for the production of coefficients that can be applied to national statistics as follows:

Segment	Firms	Employees
Computer games	293	2,547
Interactive media	2,589	21,762
Not Relevant	15,279	80,382

4.9: Total firms and employment identified within TCR based on the above search criteria. TBR, January 2011.

When applied to the Annual Business Inquiry (ABI) the table shows that this constitutes the following co-efficients/proportions:

Segment	Firms	Coefficient	Employees	Coefficient
ABI Total	18,161		104,691	
Computer games	293	1.6%	2,547	2.4%
Interactive media	2,589	14.3%	21,762	20.8%
Not Relevant	15,279	84.1%	80,382	76.8%

4.10: Total firms and employment identified within TCR and applied to the ABI to create coefficients.TBR, January 2011.

The coefficient is calculated by dividing the number of firms that have been identified on TCR through the keyword search, as being definitely in the computer games or interactive media sector, by the total number of firms that it is estimated exist in total in that SIC. The resulting percentage is the coefficient.

For example, 293 relevant firms were identified within SIC 6201 within the Computer Games sector. The ABI estimates that there were 18,161 firms in total in 6201.

The applied calculation equals $293 / 18161 = 0.016 * 100 = 1.6\%$. In the interactive media sector a larger number of 2,589 firms were found using the key word search, equating to a proportion of 14.3%.

Database segmentation – finalising the database

This method provided a replicable solution and also a comparative method for achieving data for the computer games and interactive media sectors. The original method of applying key words continued to be employed in order to classify the animation and VFX sectors. A final check of the key words was carried out, and options for use or removal made, in light of the new selection criteria for computer games, interactive media and the initial company data review and classifications (see light blue text Appendix 4.18, tab S4a and S5) Some key words were removed while others were revised and included in the animation or VFX segment, before the final process of classification was applied to these two segments.

The outcome of this phase was a workbook (Appendix 4.19). This contains a database of all companies classified within either the 'Animation' or 'VFX' subsector (specialist database tab). Within that workbook there is a full search of the whole TCR database for the missing 'test' companies (Missing Companies) detailing why they were not in this analysis. This accounts for them not being picked up in the search, despite being on the TCR database. Generally if a company was on TCR and had not been identified it was due to a key word not being present in either the company name or LOB. When I reviewed these missing key words I found they were all too generic for purpose and even the addition of new words into the search criteria would be ineffective.

In one pertinent example (Bird Studios) this LOB was extremely accurate 'Computer Animation and Special Effects for Tv and Film' however, the company sat outside the SIC search parameters. The associated SIC codes were re-examined and it was found that this company was unclassified. Other test companies also sat outside the SIC definitions with no other defining key words or information, making it impossible to pick them up. Finally, out of the forty-six 'missing company records' fourteen could not be found on TCR- reinforcing

the notion that although more complete than many other sources, this failed to achieve a comprehensive census.

Through the review of the segmented data, it was found that certain companies had been duplicated in the data outputs (Appendix 4.23- Excel sheet showing the double counted businesses and the animation/VFX keywords they contain). The records were reviewed; many were found to reside within animation due to the key word association. They had been duplicated and placed in the VFX segment as a result of an error in the segmentation process. The companies that were double-counted had different key words that appeared in both the Animation and VFX lists. They were therefore mistakenly flagged and allocated to both segments. It should also be noted that this process identified irrelevant entries that had been included as a result of this process. For example, LOVE2DANCE Ltd. was picked up because it has '2D' in the middle of the name. Similarly, Eocg (Eastern Oswestry Community Group), picked up because of the 'CG'- it was established through manual checking that neither of these companies would have any relationship to this study.

Final review and removal of erroneous records

Due to its reduced size, the data was easier to search through in order to identify more records that had 'slipped through the net'. To remove any remaining erroneous records, a final list of keywords was developed by reviewing all the company records in the Animation and VFX segments (See Appendix 4.24, Specialist Database). I manually checked each company, and if it was found to be irrelevant to the study (i.e. not employing animators) it was marked with a 'Y' (See column V). Through the examination of these records key words were identified and flagged as 'problem' words, and a list was created (See Appendix 4.22). These words were to be applied to the data in order to remove businesses that were not part of the animation or VFX segments. In a future iteration of this procedure, these keywords would be used to 'clean' the data at the beginning of the process.

This refinement included a list of key words that appeared in any form (such as 'bike' which would also remove records that had the word 'bikes' in). A problem occurred as the search would pick out a word even if it was part of a longer one (e.g. tent and content). A method was devised to only remove the company's details if the word was searched in isolation. An additional database was produced by testing these key words against companies that had

been originally identified as irrelevant. The companies were then marked with a 'Y' if they would be removed after applying the new filter (See Appendix 4.25) 'Y1' indicates firms to remove ONLY where the full word appeared in the company name, but not where the keyword was part of another word. I.e. 'tent' was removed but 'content' was not. The final database with records removed can be seen in the updated version of the database and analysis (Appendix 4.26). Once final checks were carried out, it was agreed that this was the most accurate version of the data and would be carried forward for the next stage of testing the proposed method.

Information Held Within Stage One Database

The aim of stage one was to gather information from the available data on the number of creative media firms who could potentially employ considerable volumes of animators within the UK. Regional distribution was an essential facet to this study, therefore all records were associated with a specific UK region in order to map distribution. The information was also presented in regional classifications (Appendix 4.19, 4.24, 4.25 and the final 4.26 UK Summary). It had been agreed with TBR that company postcodes (originally sourced from ONS) would be analysed and split into Government Office Regions (GOR) for the UK. This gave an understanding of the regional distribution of firms on a sector classification basis, whilst the regional boundary also conformed to official geographical models and satisfied public sector rigour. This method of separation also allowed for comparison with previous Creative Skillset data. (Appendix 4.20 and 4.21 identifies these regions).

The final Database (Appendix 4.26) contains detailed data (where the data has been supplied) on the companies including:

- HQ Flag This is a Head Quarter signifier (S= Single Site, B= Branch, H = Head Quarter). This provides information on company co-locations
- Year start
- Age of company
- Company name
- Business activity- this corresponds with the LOB either allocated or selected by the company

- Number of employees
- Executive registered to that company, including name, gender and title
- Address details including county, postcode and region SIC code

For additional scrutiny, the final database also includes a list of the original ‘test’ companies in order to validate why certain recognisable companies might be missing on review by ‘experts’ familiar with the industry.

Data analysis - producing employment statistics

The TCR contains detailed employment data, including an employment figure for each organisation on the database. This is either provided by the company itself or is estimated. The information that has been provided by the company is stated in the database that accompanies this work, in the column titled ‘Emp_Latest’. Where there are gaps in this column, this indicates that an employment figure has been estimated for use in the analysis. TBR use BIS SME statistics to employ a gap filling and weighting methodology and apply this to the TCR by modelling employment distribution patterns throughout the UK. When comparing TCR against the SME statistics, TCR demonstrates a near census of business activity. This information was utilised to estimate employment figures.

The value of the estimates used in the analysis for this study is as follows:

- total employment = 36,030
- total of actual employment data submitted by the companies = 32,490
- total estimated employment = 3,540

(TBR, 2010)

TCR also contains data on the specific location of each organisation on the database, allowing data analysis to be presented at a regional level. The employment analysis was developed by summarising the actual and estimated employment figures in TCR, and splitting this by region, to obtain figures on the distribution of employment across the UK.

The Animation and VFX database, and the results of the firms and employment analysis in all segments, by region, can be found in Appendix 4.26 UK_Summary. These tables give an overview of all employment within the selected sectors at a regional level. For example, based on the employment figures from the database, enhanced with 9.8% BIS employment statistics (see Appendix 4.27), the amount of people employed in the ‘animation’ activity classification for the East of England can be reviewed, along with the number of companies

found to be working in this area. At this stage these employment figures could relate to any occupation working within these industries (beyond the entire range of creative media occupations). However this data provides the necessary baseline information for the next stage of this study.

Stage Two

Understanding the occupations

Within the second stage of testing the proposed method, I returned to identifying, measuring and understanding the occupations of those employed as animators. From reviewing the Creative Skillset census occupational groups, it was clear that these were the best set of defined parameters for identification, although the method was not fit for purpose due to the way data was measured on the available national datasets.

I returned to Standard Occupational Classification (SOC) codes as these were the only comprehensive measurement used in standard Government survey work that were comparable across the whole economy. As this study was dealing with 2009 data, SOC 2000 was applied (the newer version SOC 2010 was available at this stage, however the datasets to be considered would have been measured using the previous version). SOC 2010 was reviewed, but I found that the occupational groups related to animation practice had little or no variation in the way that they were acknowledged (Appendix 4.32).

In terms of guidance on the relationship of SOC codes to creative media occupations, there was very little literature available. This was mainly because SSC (Creative Skillset) did not adopt this method of data collection. A joint report from both Creative and Cultural Skills and Creative Skillset had given some guidance on the relationship of SOC 2000 occupational groupings to content creation occupations (See Appendix 4.31). Beyond this guidance, Creative Skillset made reference to the Creative Skillset Sector/ Occupation unpublished matrix by Hirsch and Shillabeer in 2009. For the purposes of comparison, I had refined the matrix, only considering the identified occupations that had a relationship to animation activities. This had given a directly comparable measure in terms of all Creative Skillset occupational groups and roles to SOC 2000 codes (See Appendix 4.30). In combination with this information, the SOC2000 code manuals were searched for job activities that would

have direct relevance to the production and creation of animation, the core job activity being 'Animator'. Other potential job activities picked up were as follows (Also see Appendix 4.33 for Creative Skillset comparison and additional codes selected:

SOC Code (From SOC 2000 manual 2)	Description (From Volume SOC 2000 manual Volume 1)	Full code description (From SOC 2000 manual Volume 1)	Animation Related Job Activities (From SOC 2000 manual Volume 2)
3411	Artists	Workers in this unit group create artistic works by painting, drawing, printing, sculpting and engraving, design artwork and illustrations, and restore damaged pieces of art.	Animator (cartoon films)
5499	Hand Craft Occupations	Workers in this unit group engrave jewellery and stoneware, make artificial hairpieces, charge fireworks and munitions with explosive material, and make lampshades, wickerwork, toys, dolls, models, candles, artificial flowers, other fancy goods, and perform other hand craft occupations not elsewhere classified in minor group 549: Skilled Trades	Maker, model (animation)
3416	Arts officers, producers and directors	Arts officers, producers and directors assume creative, financial and organisational responsibilities in the production of television programmes, films, stage presentations and the promotion and exhibition of other cultural activities.	Producer, animation
3422	Product, and designers	clothing related Product, clothing and related designers plan, direct and undertake the creation of designs for new industrial and commercial products, clothing and related fashion accessories.	Designer (Games)
3421	Graphic designers	Graphic designers using illustrative, sound, visual and other multimedia techniques to convey a message for information, advertising, promotion or publicity purposes.	Designer (Multimedia, Web)
3122	Draughtspersons	Draughtspersons prepare technical drawings, plans, maps, charts and similar items.	Draughtsman (CAD), Designer (CAD)
2132	Software professionals	Software professionals are responsible for all aspects of the design, application, development and operation of software systems.	Developer (Software), Producer (Web), Designer (Software)

Source: SOC (2000) Manual volumes 1 & 2

4.11: Selected Animation related SOC Codes

Negotiating the complexities of the SOC coding system was an intricate and difficult task, and so it was agreed that using a tighter selection of SOC's was the best approach to take. This would allow me to focus on both the method and key element of this work to find as accurate a measure of animators as possible. By including some breadth beyond simply one SOC, it also allowed me to garner some information on associated professions, and to identify and contextualise closely related practices.

The UK SIC/SOC matrix data from the 2009 Annual Population Survey (APS) was used to identify which occupations (defined by the above SOC codings) are commonly employed in the SICs that make up the animation sector and all of its segments (hereafter referred to as the 'footprint' that was identified in the previous section).

The Annual Population Survey (APS) is a combination of results (LFS) and the English, Welsh and Scottish LFS boosts. The survey provides enhanced data on key social and socio-economic variables.

Datasets are produced quarterly, with each dataset containing 12 months of data. The data are available for Government Office Region (GOR) or through a special license by local authority level.

<http://www.ons.gov.uk/about/who-we-are/our-services/unpublished-data/social-survey-data/aps/index.html> (4/08/11)

This mix of information makes for a more robust sample in terms of regional data. The total APS SIC/SOC is based on a sample size of 144,102 survey respondents. The matrix used for this study included only data from the shortlist of SICs in which the footprint is counted, and as such the analysis is based on 3,103 survey responses.

The figures in the SIC/SOC matrix are produced when the APS survey respondents provide information on the industry they work in and their occupation. ONS then code the responses into the relevant SIC/SOC classifications, and these responses are weighted using ONS' methodology. This has been devised by statisticians at ONS and applied consistently and universally to the data they generate. For example with the APS, the 144,102 survey respondents is scaled up to a total UK employment figure of 28,549, 938 after ONS have applied their weights. This means that 1 response to the APS equates to approximately 198 people in the data. Once data has been weighted the SIC/SOC matrix is produced from the weighted figures.

UK level SIC/SOC data was used because the sample size was insufficient to give a robust regional breakdown. In order to gain a regional understanding of the number of people employed in each SOC, employment figures were used by region generated from TCR in Stage 1 and the data provided by the SIC/SOC matrix to estimate how many people were employed in SOC by region.

Each 4 digit SIC in the 'footprint' was examined and for every one the proportion of employment was calculated using 2 digit SOCs, and for a small number, 4 digit SOCs. The analysis had to employ 4 digit SICs (rather than 5 digit) because the APS does not produce SIC/SOC data by 5 digit SIC. 5 digit is considered to be too granular, and based on the sample sizes would provide figures that would be very disaggregated and unreliable.

These proportions were applied to the 'footprint' data developed in Part 1, to produce an estimate of the amount of employment in the footprint and in each segment by all 2 digit SOCs at a UK and regional level. This process was repeated to analyse the 'footprint' and each segment by a selection of 4 digit SOCs that are specifically relevant to the animation subsector:

- 5499 Hand craft occupations n.e.c.
- 3422 Product, clothing and related designers
- 3421 Graphic designers
- 3416 Arts officers, producers and directors
- 3411 Artists
- 3122 Draughtspersons
- 2132 Software professionals

The output from this was two excel workbooks detailing the occupational breakdowns in each segment and region.

This first workbook provided an opportunity to test the method, and to look at levels of potential employment in the identified sectors. It evidenced the total employment in all SOC's for the SIC's that had been identified as main areas of business that could potentially employ animators. It allowed for comparison in the second part of Stage 2 where the SOC code was narrowed to focus on the 'specialist' occupations contained within the identified segments. This gave a greater overview (using Government level data) of the proportions of those employed in 'specialist' occupations and those employed in 'non- specialist' occupations, related to the four segments under consideration. Please see Appendix 4.34 for detailed explanation of Workbook 1: Analysis using two digit SOC (Appendix 4.34a).

These initial tables give an overall view of the method to be employed with the more focused 4 digit SOC's explored within the next version. This data also gives an overview of

the level of employment contained within each of the identified segments using SIC codes, verified by the key word search to a regional level. Because of the refinement of the process, this is the closest estimate in terms of assurance and accuracy the study can offer. Please see Appendix 4.35 for detailed explanation of Workbook 2: Analysis using four digit SOC (Appendix 4.35a).

East of England 'Control' census

As an additional piece of bridging work between the Creative Skillset data and the original work with TBR, a control analysis was conducted. This specifically identified companies in the East of England. As with all of this work the control used the defined Government Office Region (GOR) for the East of England.

A detailed database was built manually using data from my previous work on the Animation Industry in the East of England (chapter one). I followed the same process as the TBR method, first identifying companies and then relevant employees. The crucial difference was that a comprehensive list of companies was created directly from known sources, and employment data was gathered through interviews with those company's representatives.

Initially the control aimed to fully replicate the four segments used within the TBR work, and to pick-up as many companies as possible from each identified subsector. The parameters and potential difficulties for the first stage search were noted as follows:

- **Full Animation content** (*input/ output, i.e. TV series production, commercials and feature film*) *Core of their business contributes to animation production*

- **Computer Games** *need to watch out for Games Publishers (these companies do not employ animators) here are some examples avoided:*
Eidos
Capcom
Electronic Arts
Nintedo
Sega
Microsoft Games

- **VFX – visual effects**, *these may come up as postproduction or motion graphics as well*

*- **Interactive Media**- this is a very broad classification and to a certain extent a dumping ground, I will need to concentrate on the above three classifications for now but put anything in here I think is more relevant to this classification than those above. It has been found that a lot of web design companies tend to employ animators so these go in here.*
(Jodie Wick, 22/02/11)

A cross-section of industry sources were consulted in order to identify relevant companies. The database was originally generated in 2006 (Appendix 4.36) but had been updated and used as a means of tracking contacts at animation-related companies by the author. In order to clean and update the information in early 2011, a combination of industry directories, company databases (Plimpsoll, Mint, Companies House, UKTI) and telephone directories were analysed (Appendix 4.37).

The taxonomies of the companies were based on classifications from directories. All companies known by the author to be incorrect entries or no longer operating were highlighted, double checked and then removed. Confirmation of each classification was undertaken through contacting each company on the database by telephone (See Appendix 5.6). Refinements were made from respondent feedback where they had selected 'non' animation sectors', and checked against responses (where present) i.e. the way respondents classified themselves or if the respondent did not employ animators.

The search established that 93 companies were working in the identified sectors in East of England. Of the 93 contacted by telephone 28 responses were received. Every entry on the database was telephoned twice in order to achieve the maximum response rate. Disappointingly by only achieving a 26% response rate, fully comprehensive data cannot be reviewed.

Similar to Creative Skillset's method of counting companies, there were no rigid parameters on the directory searches, meaning that an infinite number of companies could be found with no fixed search boundaries beyond the pinpointed sectors. In order to counteract this, a large number of sources were accessed and cross-referenced to ensure the identification and count was as accurate as possible.

A company was classified as an animation company through self-definition. For non-respondent's categorisation, sources were reviewed to gain company names and details

(Appendix 5.7). Responses to the telephone survey also helped to enhance and verify the database.

The database replicated the TCR data, adding reasons for classification, a breakdown of employees and freelancers, and including a number of employees and freelancers whose primary role was 'animator'.

As this was a manual exercise, with few set parameters, once the search had been exhausted and the database had been cleaned and sorted, it was determined that all animation companies within the available data footprint had been established. (Appendix 5.8)

Summary

The applied analysis of the Creative Skillset census data using the *Creative Trident* Model demonstrates an improved view of the animation sector in the UK. This process gives an enhanced understanding of the occupational role of animator, and where they are employed within the creative media sector. The technique of applying the regional data from the census also demonstrates where the gaps lie in the Creative Skillset census data. For every region, specific occupational data is lacking for each sector. Within this chapter I have demonstrated a potential gap filling methodology that could be employed through the application of UK percentages to available regional census data.

The majority of this chapter has been dedicated to documenting the iterative and emergent process of design for an independent solution to the lack of regional occupational data. This collaborative exploratory work has led to the development of a potentially improved method. The data gathered comes from publicly available, Government-recognised data based around a fixed source, providing a strong framework for comparative temporal work. The methods applied have been carefully detailed in order to ensure that the process could be transferable and replicable. The outcomes of this is the creation of two stages of work:

Stage 1: Industry database- A segmented database, established through the search and selection of all available entries in the UK.

Stage 2: Occupational database- Based on stage one industry footprint, this database provides detailed information on the level of employment and occupation for each segment and region within the UK.

The final process detailed within this chapter is that of a 'control' census. In contrast to the methods described above, this was a manual process dealing with predominantly primary source material. Given the arduous task of selecting and contacting the companies, this work was confined to the animation industry and the case study region. It is intended that the outcomes from this control census will provide an additional benchmark for detailed comparison within the next stage of this project.

Chapter 5

Outcome Analysis

Introduction

This Chapter intends to apply the *Creative Trident* Methodology (Cunningham and Higgs) in order to provide consistency when testing and thorough comparison of selected data. The application of this process will reveal the extent and contribution of those working in the defined sectors, considering the volume of animators working across these areas at regional and national level.

Baseline comparisons

This chapter includes a detailed look at the outcomes of the applied experimental methodology used to define, map and analyse the animation sector, particularly in relation to the East of England. The outcomes from this experimental research will be considered using TCR data and implications of the findings logged in data workbooks.

Where data is available, all identified relevant sectors, animation, computer games, interactive media and VFX will be reviewed in relation to the UK and the East of England. This will not only offer a detailed snap-shot of where the majority of animators are working, but also an increased layer of comparability between data in order to spot patterns and irregularities.

The study includes consistent triangulation of the Creative Skillset 2009 census data using the *Creative Trident* Model, in order to ascertain baseline employment information for the UK. This process will result in comparative data and also percentage weightings to apply for further evaluation when appraising existing Creative Skillset information in relation to the East of England.

Employment levels will be established by repeating the process with the experimental TCR data, triangulating data from all segments. The data is presented in various SOC groupings in order to allow review of particular occupational classifications for the sector. This breakdown will provide analysis, allowing for an enhanced view of employment levels across the identified sector and the rest of the creative media industries. This approach is

intended to increase potential comparison with Creative Skillset’s identified animation occupational roles and job titles.

The selected SOC groupings were demarcated as follows, please see Chapter 4, p.186 for full job activity definitions and reasoning for selection:

SOC code*	Animation Related Job Activity
3411	Animator (cartoon films)
5499	Maker, model (animation)
3416	Producer, animation
3422	Designer (Games)
3421	Designer (Multimedia, Web)
3122	Draughtsman (CAD), Designer (CAD)
2132	Developer (Software), Producer (Web), Designer (Software)

5.1: Selected SOC Groups to be used in this study *SOC 2000 manual Volume 2

The SOC codings were split into the following groups to allow for the best possible analysis in relation to both the Creative Skillset and control study:

SOC code	Animation Related Job Activity
3411	Animator (cartoon films)
3411 5499 3416	Animator (cartoon films) Maker, model (animation) Producer, animation
3411 5499 3416 3422 3421 3122 2132	Animator (cartoon films) Maker, model (animation) Producer, animation Designer (Games) Designer (Multimedia, Web) Draughtsman (CAD), Designer (CAD) Developer (Software), Producer (Web), Designer (Software)

5.2 SOC coding split for analysis within this study

Considering Creative Skillset animator’s occupational roles and job titles (Chapter 4, Appendix 5.4), the Labour Force Survey and Creative Skillset Creative Media Employment Estimates (Chapter 4, p.166, Appendix 4.6) assessment could only be made through job role descriptions and titles, and not through direct code comparison. I therefore made the decision that for the best opportunity to evaluate the findings, a broad range of potential job activities had to be identified and captured. The first category (yellow) looks at Animators only, and is expected to contain the purist measure of those working in this area. The second category (pink) is considered to be the closest representation of job activities to the Creative Skillset defined groupings for Animation as a whole. The last cluster (blue)

includes broader job activities associated with Creative Skillset's 'Art and Design' occupational groups and an additional nod to their 'technical development' occupational grouping (found in interactive media) with the inclusion of SOC 2132. As with the Creative Skillset data each identified sector will be explored and key findings commented upon.

East of England Focus

As the focus of this study is to establish a more accurate measure of animation-related activities at a local level, I will consider the East of England test area in detail. The percentage weightings generated from Creative Skillset's UK data are herewith applied to the *Creative Trident* Methodology for the East of England. The trident examines all identified sectors in relation to Creative Skillset's coverage of creative media industries, classifying animators working in those sectors and total workers in each identified sector. All findings for each identified sector are individually discussed. The TCR regional data is then applied in exactly the same way, in order to generate new data for the East of England. Information for the 'rest of the creative media industries' is restricted only to the identified sectors (animation, computer games, interactive media and VFX) explored within the experimental study. This methodology is applied to all selected sectors, and compared with the TCR UK findings in order to determine the position of the East of England in relation to the national picture generated from this data.

The last segment of fieldwork relates to a 'control census' generated by the author in order to act as a comparison to both the Creative Skillset information and the experimental TCR data. The control is focused specifically on the East of England and is concerned only with accessing information on the animation sector in this region. The aim of this portion of the research was to capture the most accurate situation in terms of companies and employees through manually identifying, contacting and sorting each company.

An appraisal is made of all findings for the East of England. This relates only to the Animation sector owing to the comparative data at this focused stage. The comparison consists of Creative Skillset, TCR and the control census, considering in detail the similarities and differences in the findings in terms of both industry and employment mapping.

This chapter offers an overview of the data and findings created from this phase of the study, as well as comparing outcomes. Causes of these findings are evaluated within the final section of this chapter and full recommendations made within the concluding chapter.

Section One- Data Findings

TBR Data

Summary of findings from the work with TBR using TCR company data to generate employment data and referencing UK Regions as defined by GOR boundaries (NUTS Level 1) 12 regions.

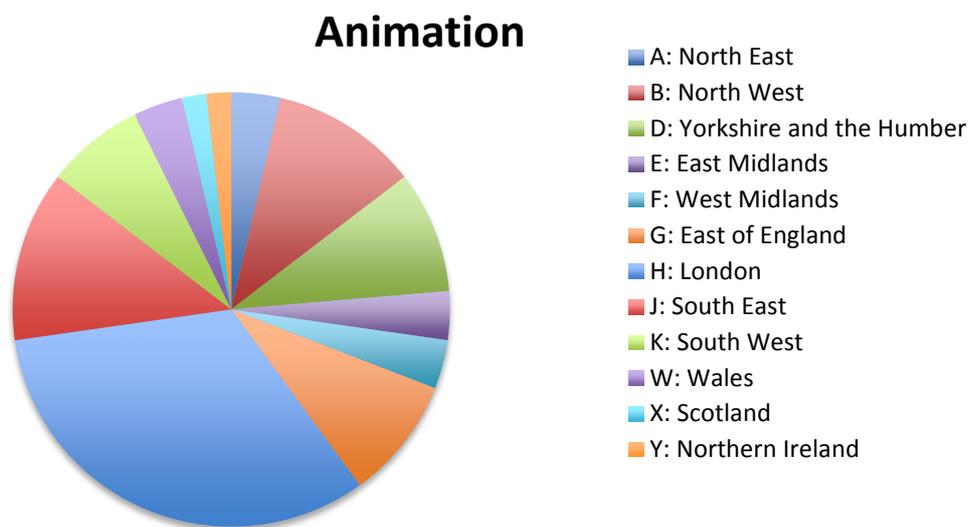
Part One-Companies Count and Employment Statistics

See Appendix 5.2_TCR_Animation_Database_Companies

Company Count

Using the applied methodology from stage one of the TCR database research the following number of companies was found for each identified subsector. In relation to this research comment will be made only on the case study area East of England.

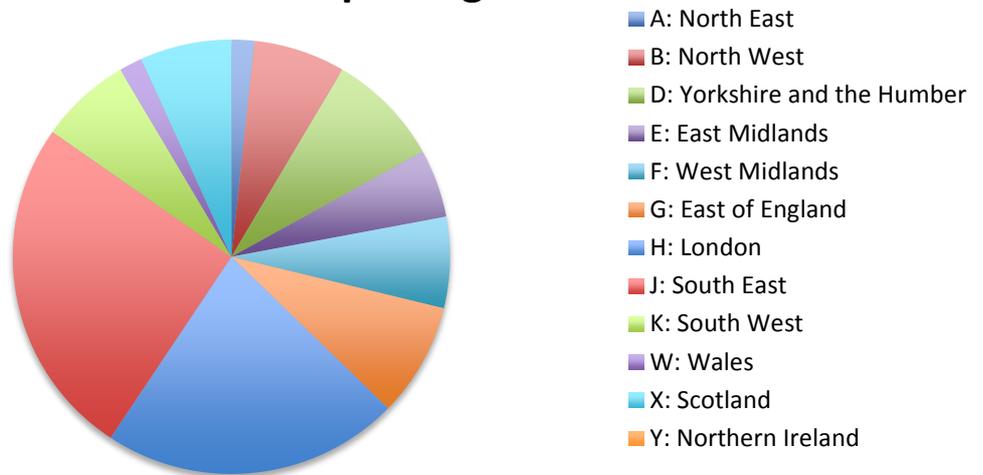
Note: Colour coding commences at the 12'o clock position within each pie chart



5.3: Total number of animation companies operating in each region within the UK

9% (25) of recognised animation companies were identified as operating in the East of England postcode region. This put the region joint fifth in respect of these companies out of the twelve regions.

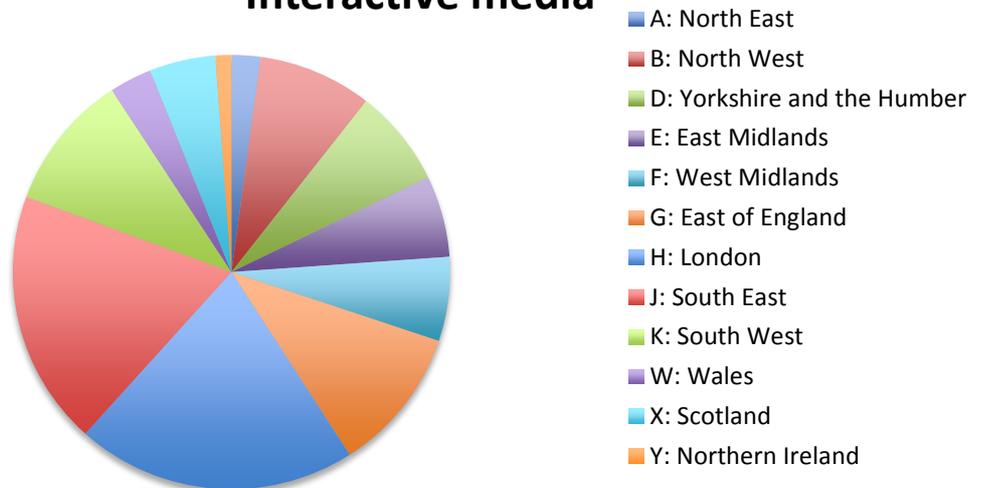
Computer games



5.4: Total number of computer games companies operating in each region within the UK

Just under 9% (25) (position 4th/12) of identified computer games companies were recognised as operating in the East of England postcode region.

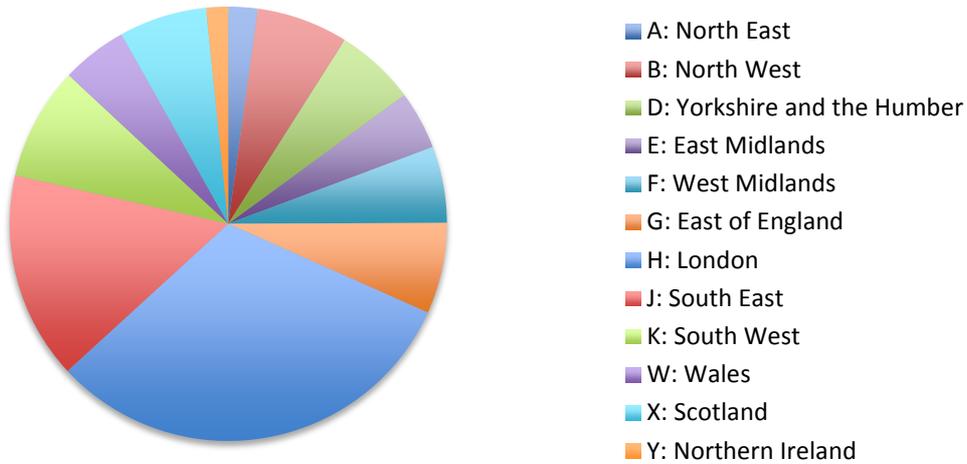
Interactive media



5.5: Total number of interactive media companies operating in each region within the UK

Just under 11% (275) (position 3rd/12) of identified interactive media companies were recognised as operating in the East of England postcode region.

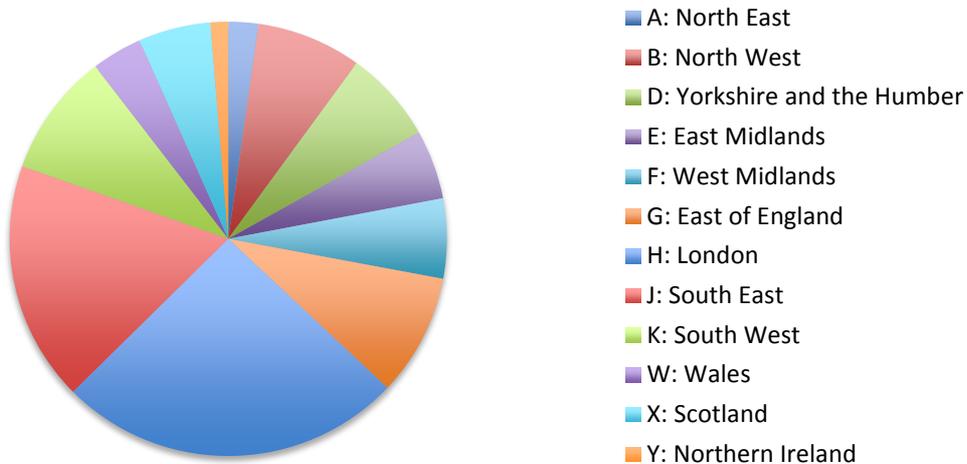
VFX



5.6: Total number of VFX companies operating in each region within the UK

Just under 7% (125)(Position joint 4th/12) of identified VFX companies were recognised as operating in the East of England postcode region.

Total Number of Businesses

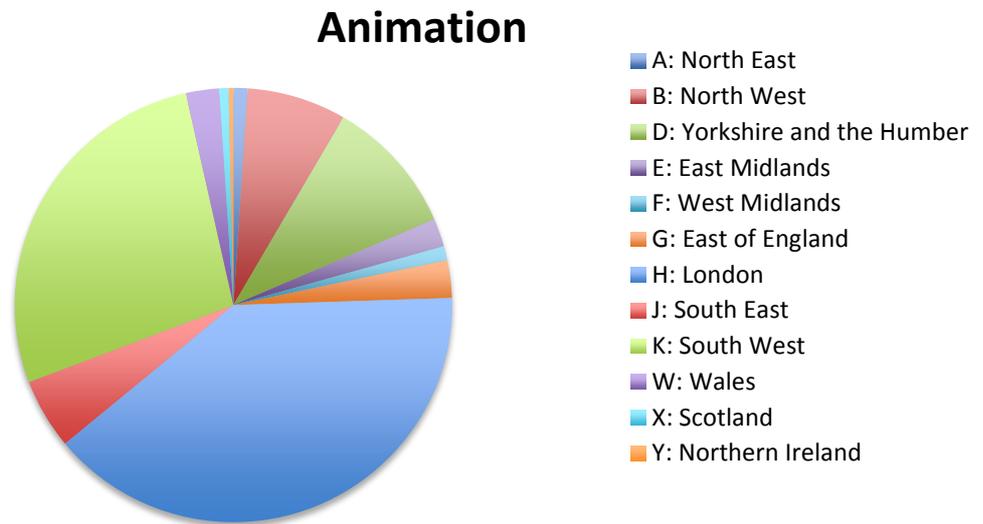


5.7: Total number of companies within the identified sector footprint operating in each region within the UK

Considering the total number of businesses, the East of England count found that just under 9% (430) of all identified sub-sectoral businesses were based in the region. This placed the region fourth out of the twelve regions behind the largest concentration London (26%), then South East (18%) and South West (9%), respectively.

Employee Count

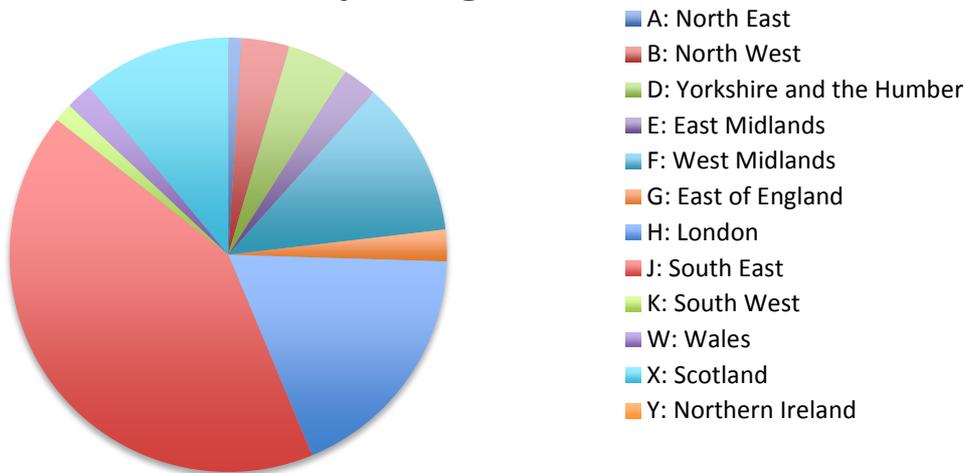
Based on the company count each data entry also includes an employment figure, either provided by the company itself or estimated by TBR statisticians (See Appendix 5.9_TBR_TCRWeighting&EstimationExplanationNOTTOBEPUBLISHED- Please note this item has been removed for publication). Please note that the findings below are total employment numbers including all employees within the businesses, these employees may or may not be engaged in animation-related occupations.



5.8: Total number of employees working at animation companies operating in each region within the UK

3% (40) of the total employees within the identified animation companies were based in the East of England postcode region. This put the region joint fifth in respect of employment volume out of the twelve regions.

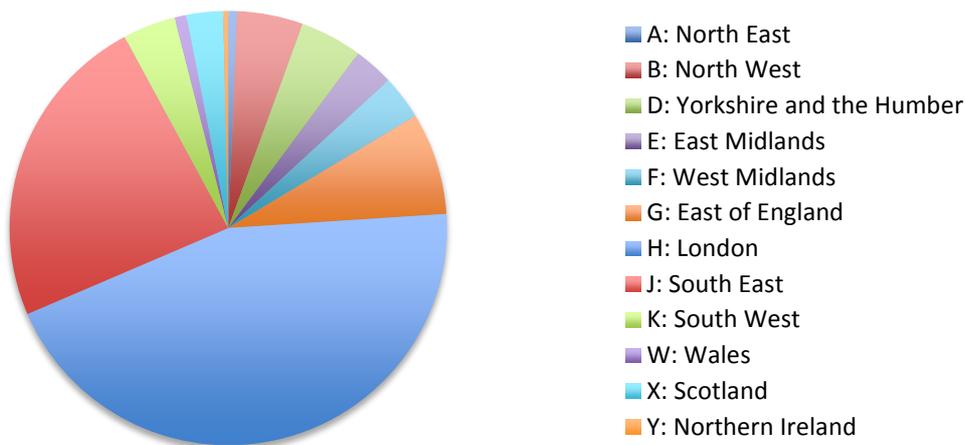
Computer games



5.9: Total number of employees working at computer games companies operating in each region within the UK

Just over 2% (60) (position 8th/12) of the total employees worked in the identified computer games companies recognised as operating in the East of England postcode region.

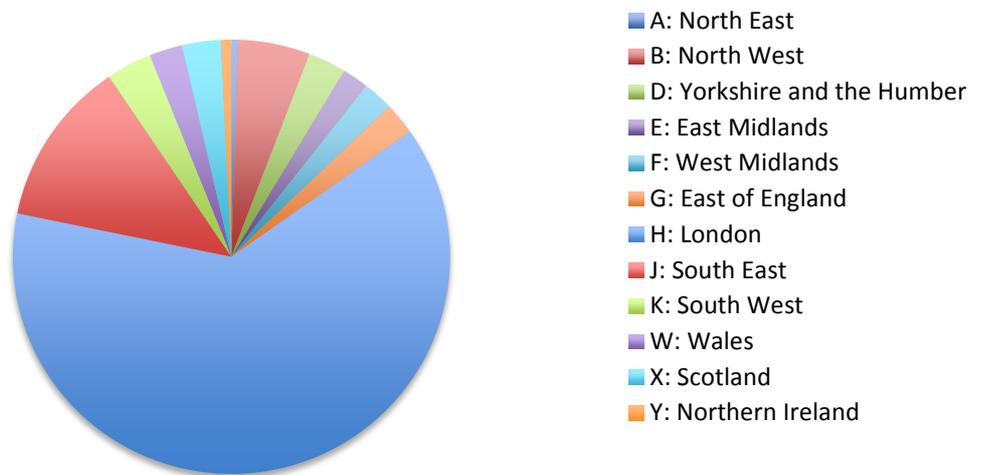
Interactive Media



5.10: Total number of employees working at interactive media companies operating in each region within the UK

Just under 8% (1640) (position 3rd/12) of the total employees worked in the identified interactive media companies recognised as operating in the East of England postcode region.

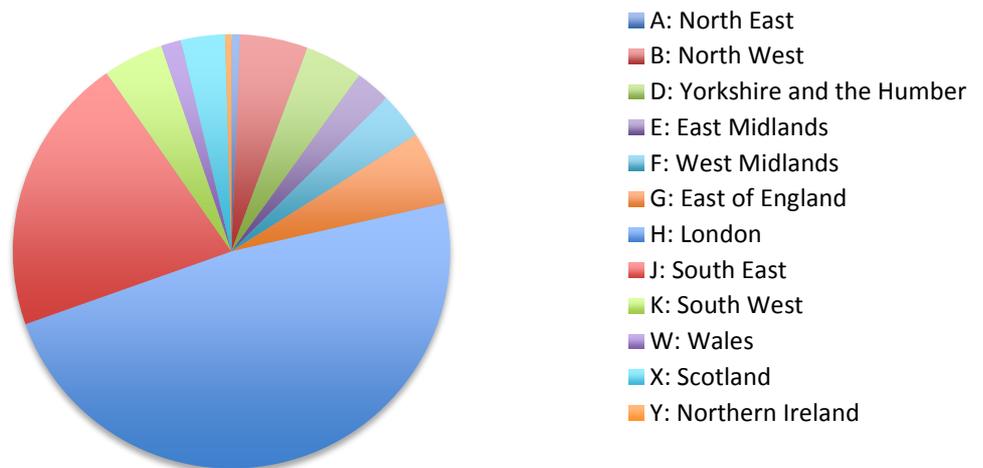
VFX



5.11: Total number of employees working at VFX companies operating in each region within the UK

Just over 2% (265) (position 8th/12) of the total employees worked in the identified VFX companies recognised as operating in the East of England postcode region.

Total Number of Employees



5.12: Total number of employees within the identified sector footprint operating in each region within the UK

The East of England count found that 5% of those identified to be working in all identified subsectoral businesses were based in the region. This placed the region third out of the twelve regions behind London (49%) and then South East (21%), respectively.

In order to understand the make-up of the occupations situated within the selected subsectors, the data from the final iteration of the part one database formed the basis for the development of part two.

Part Two- Understanding the Occupations

2 Digit SOC Workbooks

See Appendix 5.3_TCR_Final_SIC_SOC_analysis_2_digit_V4

The workbook provides an illustration of the hierarchal structures within the employers of this sector. This has been measured in relation to the identified SIC codes and subsequently each identified sector. The following data in these workbooks has been reviewed in detail:

- Overview of UK, identified levels of employment for each sector
- Regional consideration- East of England, levels of employment for each sector

This 2 Digit SOC workbook also provides initial employment data for the identified sectors. The expanded review of these data tables can be found in appendix 5.3a

The outcomes of the 2 digit SOC workbooks demonstrate that within the whole of the identified footprint for this study SIC 6201 Computer programming activities has been the largest employer (24,130), followed by SIC 5911 Motion picture, video and television programme production activities (9,475). In terms of occupational level, within the footprint most workers (10,506) work within SOC 21 Science and technology professionals, followed by SOC 34 (Culture, Media and Sports occupations) with a total of 9,506 workers. Corporate managers (SOC 11) sit third overall with 7,820 being identified within this description.

Within the sector of animation activities, the majority (59%) of workers in this field are classified within SOC 34 Culture, media and sports occupations, followed by 9% who were corporate managers (SOC11). Within the East of England Region the majority (86%) of workers are found to be within SIC 6201 Computer programming activities and a further significant 12% found to be working within SIC 5911 Motion picture, video and television programme production activities. The majority of applicable workers in East of England are found on the SOC 34 category and the in the following levels:

1. Managers and Senior Officials
2. Professional Occupations
3. Associate Professional and Technical Occupation

4 Digit SOC Workbooks

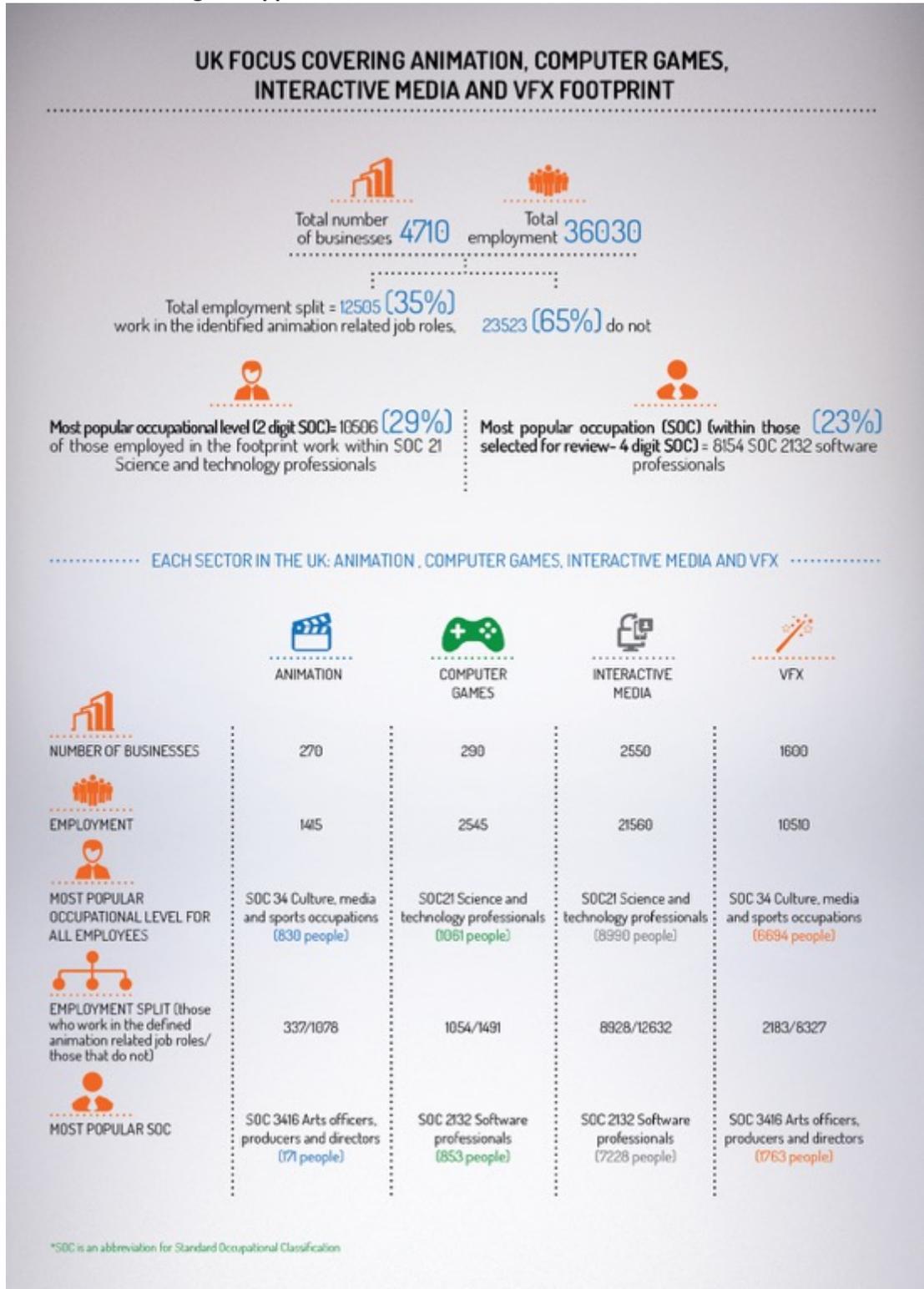
See Appendix 5.5_TCR_SIC_SOC_analysis_4_digit_V4

This workbook provides detailed analysis of specifically identified 4 digit SOC codes in relation to the selected SIC's providing a footprint for each sector. The 4 digit SOC codes provide a clearer overview in relation to the volume of specialist occupations employed within each segment. The expanded review of these data tables can be found in appendix 5.5a

The outcomes of the 4 digit workbooks demonstrate that SIC 6201 Computer programming activities remains the largest employer (9,992), followed by SIC 5911 Motion picture, video and television programme production activities (1,887). Considering occupational level, within the footprint most workers (8,154) work within SOC 2132 Software professionals, followed by SOC 3416 (Arts officers, producers and directors) with a total of 1,934 workers. Graphic Designers (SOC 3421) sit third overall with 1,683 being identified within this description.

Considering the identified animation segment, 337 people were pinpointed as working in the defined 4 digit SOC's (24%). The majority of the subtotal (51%) of workers being classified within SOC 3416 were Arts officers, producers and directors followed by 18% who were Artists (SOC 3411). Within the East of England Region 10 of the total 40 identified workers were found to be working in the selected 4 digit SOC's.

The following pages contain Data visualisations for each sector at both regional and national level using the applied TCR



(5.13)

THE FOOTPRINT IN THE EAST OF ENGLAND

East of England focus covering Animation, Computer Games, Interactive Media and VFX footprint



Total employment split = 687 (35%) work in the identified animation related job roles, 1293 (65%) do not



EACH SECTOR IN EAST OF ENGLAND: ANIMATION, COMPUTER GAMES, INTERACTIVE MEDIA AND VFX

	ANIMATION	COMPUTER GAMES	INTERACTIVE MEDIA	VFX
NUMBER OF BUSINESSES	25	25	185	110
EMPLOYMENT	40	60	1640	240
MOST POPULAR OCCUPATIONAL LEVEL FOR ALL EMPLOYEES	SOC 34 Culture, media and sports occupations (24 people)	SOC21 Science and technology professionals (25 people)	SOC21 Science and technology professionals (684 people)	SOC 34 Culture, media and sports occupations (153 people)
EMPLOYMENT SPLIT (those who work in the defined animation related job roles/ those that do not)	10/30	25/35	679/961	50/190
MOST POPULAR SOC	SOC 3416 Arts officers, producers and directors (5 people)	SOC 2132 Software professionals (20 people)	SOC 2132 Software professionals (550 people)	SOC 3416 Arts officers, producers and directors (40 people)

*SOC is an abbreviation for Standard Occupational Classification

(5.14)

THE ANIMATION SECTOR



Total employment split = 337 (24%) work in the identified animation related job roles, 1078 (76%) do not



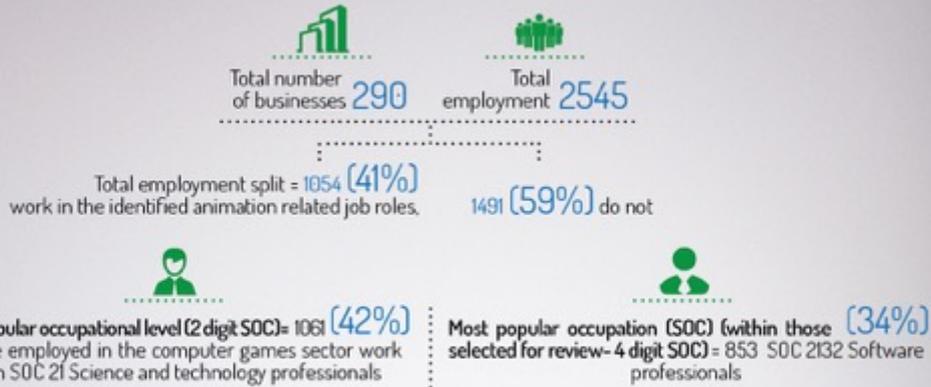
UK REGIONAL BREAKDOWN

REGION	TOTAL NUMBER OF BUSINESSES	TOTAL EMPLOYMENT	NUMBER OF PEOPLE WORKING WITHIN THE MOST POPULAR EMPLOYMENT LEVEL (SOC 34)	EMPLOYMENT SPLIT (those who work in the defined animation related job roles/ those that do not)	NUMBER EMPLOYED IN MOST POPULAR OCCUPATION (SOC 3416)
NORTH EAST	10	15	9	4/11	2
NORTH WEST	30	105	62	25/80	13
YORKSHIRE AND THE HUMBER	25	145	85	35/110	18
EAST MIDLANDS	10	30	18	7/23	4
WEST MIDLANDS	10	15	9	4/11	2
EAST OF ENGLAND	25	40	24	10/30	5
LONDON	90	565	327	132/423	67
SOUTH EAST	35	75	44	18/57	9
SOUTH WEST	20	390	230	93/297	47
WALES	10	35	21	8/27	4
SCOTLAND	5	10	6	2/8	1
NORTHERN IRELAND	5	5	3	1/4	1
TOTAL	270	1415	833	337/1078	171

*SOC is an abbreviation for Standard Occupational Classification

(5.15)

THE COMPUTER GAMES SECTOR



UK REGIONAL BREAKDOWN

REGION	TOTAL NUMBER OF BUSINESSES	TOTAL EMPLOYMENT	NUMBER OF PEOPLE WORKING WITHIN THE MOST POPULAR EMPLOYMENT LEVEL (SOC 21)	EMPLOYMENT SPLIT (those who work in the defined animation related job roles/ those that do not)	NUMBER EMPLOYED IN MOST POPULAR OCCUPATION (SOC 2132)
NORTH EAST	5	25	10	10/15	8
NORTH WEST	20	90	38	37/53	30
YORKSHIRE AND THE HUMBER	25	115	48	48/67	39
EAST MIDLANDS	15	65	27	27/38	22
WEST MIDLANDS	20	295	123	122/173	99
EAST OF ENGLAND	25	60	25	25/35	20
LONDON	65	465	194	193/272	156
SOUTH EAST	75	1070	446	443/627	359
SOUTH WEST	20	35	15	14/21	12
WALES	5	50	21	21/29	17
SCOTLAND	20	280	117	116/164	94
NORTHERN IRELAND	0	0	0	0	0
TOTAL	290	2545	1061	1054/ 1491	853

*SOC is an abbreviation for Standard Occupational Classification

(5.16)

THE INTERACTIVE MEDIA SECTOR



 Total number of businesses **2550**



 Total employment **21560**

Total employment split = 1054 (41%) work in the identified animation related job roles.

 1491 (59%) do not



 Most popular occupational level (2 digit SOC) = 8990 (42%) of those employed in the interactive media work within SOC 21 Science and technology professionals



 Most popular occupation (SOC) (within those selected for review - 4 digit SOC) = 7228 SOC 2132 software professionals

UK REGIONAL BREAKDOWN

REGION	TOTAL NUMBER OF BUSINESSES	TOTAL EMPLOYMENT	NUMBER OF PEOPLE WORKING WITHIN THE MOST POPULAR EMPLOYMENT LEVEL (SOC 20)	EMPLOYMENT SPLIT (those who work in the defined animation related job roles/ those that do not)	NUMBER EMPLOYED IN MOST POPULAR OCCUPATION (SOC 2132)
NORTH EAST	55	140	8	58/82	47
NORTH WEST	215	1050	61	435/615	352
YORKSHIRE AND THE HUMBER	185	995	58	412/583	334
EAST MIDLANDS	155	635	37	263/372	213
WEST MIDLANDS	160	705	41	292/413	236
EAST OF ENGLAND	275	1640	95	679/961	550
LONDON	530	9605	556	3977/5628	3220
SOUTH EAST	485	5090	294	2108/2982	1706
SOUTH WEST	260	845	49	350/495	283
WALES	80	185	11	77/108	62
SCOTLAND	125	585	34	242/343	196
NORTHERN IRELAND	30	80	5	33/47	27
TOTAL	2550	21560	1247	8928/ 12632	7228

*SOC is an abbreviation for Standard Occupational Classification

(5.17)

THE VFX SECTOR



Total employment split = 337 (24%) work in the identified animation related job roles, 1078 (76%) do not



Most popular occupational level (2 digit SOC) = 6694 (64%) of those employed in the animation sector work within SOC 34 Culture, media and sports occupations



Most popular occupation (SOC) (within those selected for review - 4 digit SOC) = 1763 SOC 3416 Arts officers, producers and directors (17%)

UK REGIONAL BREAKDOWN

REGION	TOTAL NUMBER OF BUSINESSES	TOTAL EMPLOYMENT	NUMBER OF PEOPLE WORKING WITHIN THE MOST POPULAR EMPLOYMENT LEVEL (SOC 34)	EMPLOYMENT SPLIT (those who work in the defined animation related job roles/ those that do not)	NUMBER EMPLOYED IN MOST POPULAR OCCUPATION (SOC 3416)
NORTH EAST	25	45	29	9/36	8
NORTH WEST	105	570	363	118/452	96
YORKSHIRE AND THE HUMBER	90	300	191	62/238	50
EAST MIDLANDS	65	185	118	38/147	31
WEST MIDLANDS	90	215	137	45/170	36
EAST OF ENGLAND	105	240	153	50/190	40
LONDON	545	6955	4430	1445/5510	1166
SOUTH EAST	235	1010	643	210/800	169
SOUTH WEST	135	350	223	73/277	59
WALES	80	265	169	55/210	44
SCOTLAND	95	295	188	61/234	49
NORTHERN IRELAND	25	80	51	17/63	13
TOTAL	1600	10510	6694	2183/ 8327	1763

*SOC is an abbreviation for Standard Occupational Classification

(5.18)

Triangulation of comparative Creative Skillset data is reviewed in this section:

Creative Skillset Company Database

NOTE: Data taken from the following Creative Skillset census sources 5.12_asset_14505, 5.13_asset_14503, 5.14_asset_14504, please see Chapter 5, appendices.

Creative Skillset

Triangulation of Creative Skillset UK data for comparison to TCR data

The outcomes below apply the *Creative Trident* Method to the existing 2009 Creative Skillset census data to create baseline data for application to East of England data and eventual comparison with all findings later in the chapter.

All percentages have been rounded to the nearest 10.

Example Formula for Calculations:

UK	Animation sector	Rest of creative media Industries
Animation occupational group	A) Total Animators working in the identified sector (including all Creative Skillset defined occupations) derived from Y003_asset_14505, Tab: Animation, M67	B) Total Animators Y004_asset_14503, Tab: Totals Summary, L14 (minus) A) Total Animators
All other occupational areas	C) Total sector employment Y005_asset_14504, Tab: Animation, L32 (minus) A) Total Animators	D) UK total Creative employment Y004_asset_14503, Tab: Totals Summary, L32 (minus) Y004_asset_14503, Tab: Totals Summary, L14

5.19: Method of applying Creative Skillset employment data to the *Creative Trident* Model

Table 1 above demonstrates how the proposed *Creative Trident* Methodology process of analysis will be applied using the Creative Skillset data considered in Chapter 4. The Creative Skillset data identifies the number of animators working in Animation in the UK (A) and provides the overall employment total for animators working in all creative industries in the UK. This can be subtracted from the total number of animators working in animation, to give the total number of animators working in other creative sectors in the UK (B).

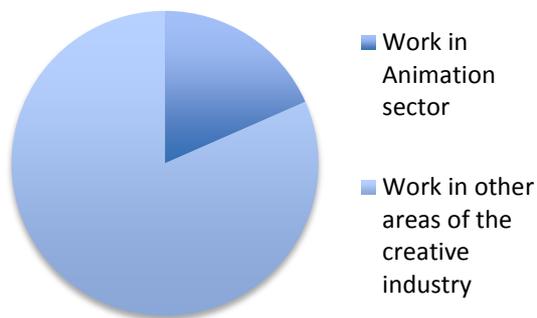
To find out how many people work in animation that aren't actually animators, the Creative Skillset data on employees working in the animation sector is subtracted from the total animators working in the Animation sector (C).

The total creative employment minus all animators can be found in section (D). Percentage totals can be calculated from the above findings, if we know how many animators are working outside of the animation sector (B), we can then therefore calculate the percentage of animators that work in the sector (A). We can also understand the percentage of employees who are not animators working in the animation sector (C). We can establish what percentage of the overall creative industries workforce are animators.

Please see Appendix 5.21 for sectoral calculations relating to the findings below

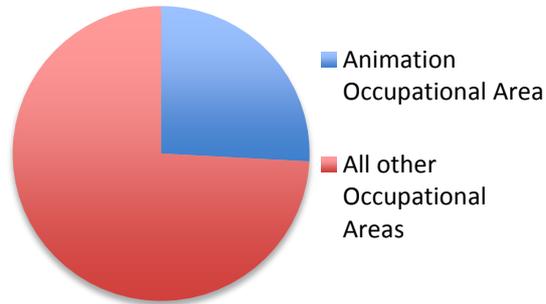
Animation

According to the applied Creative Skillset census figures 18% (A) of all animators in the UK work in the animation sector, 82% (B) work in other creative media sectors:



5.20: Total Animators working in the Creative Media Industries

In terms of those working in the animation sector 2,800 workers (65%) (C) are not animators and 35% are:

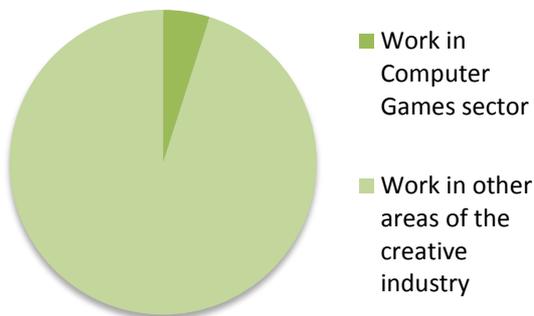


5.21: Total Employees split in Animation Sector

Of the total creative industries employment in the UK 5% (D) work as animators and just under 1% (1,500/ 162,390x 100) work as animators in the animation sector.

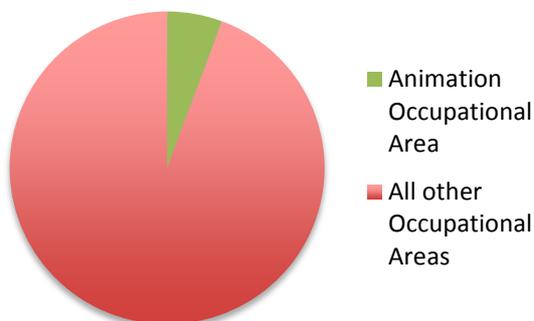
Computer Games

5% (A) of all Animators work in the Games sector and 95% (B) work in other creative media sectors.



5.22: Total Animators working in the Creative Media Industries

Of those working in the Computer Games sector 6,650 (94%) (C) are engaged in other job roles and 6% are animators:



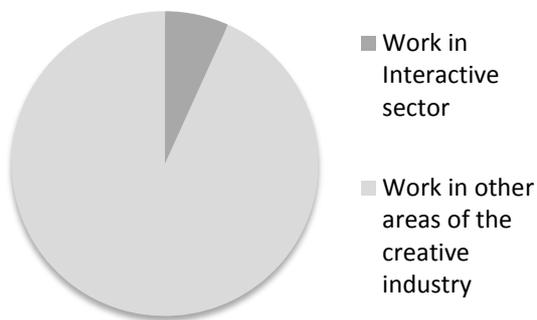
5.23: Total Employees split in Computer Games Sector

Only 0.2% of the total creative media industries work as animators in the Computer Games sector.

Interactive Media

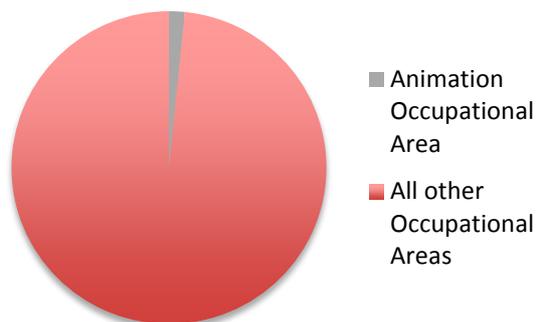
As discussed in Chapter 4, p156, a combination of sectors have been considered under the subdivision of Interactive Media, these have been considered and then combined in order to calculate the outputs below.

Inclusively, 7% (A) of all animators work in the Interactive Media sector, 93% (B) work in the rest of the Creative Media Sectors:



5.24: Total Animators working in the Creative Media Industries

Only 2% of those working in the Interactive Media sector are animators.

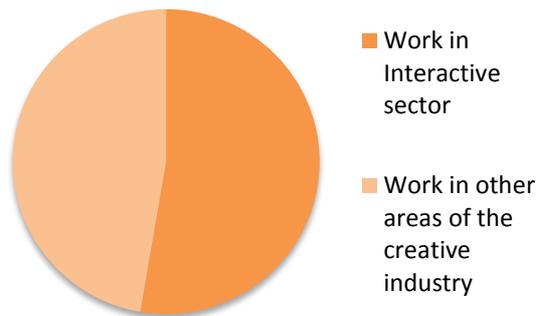


5.25: Total Employees split in the Interactive Media Sector

0.3% of whole of the creative media industries are working as animators in the Interactive Media sector.

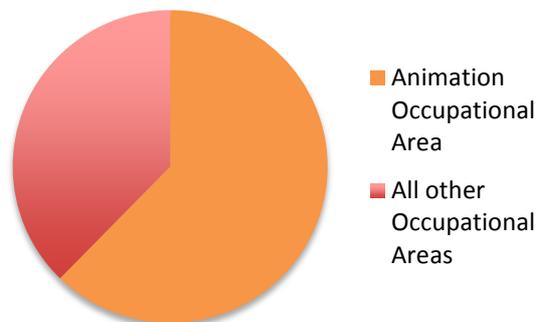
VFX

53% (A) of all animators work in the VFX sector and 47% (B) work in other creative media sectors:



5.26: Total Animators working in the Creative Media Industries

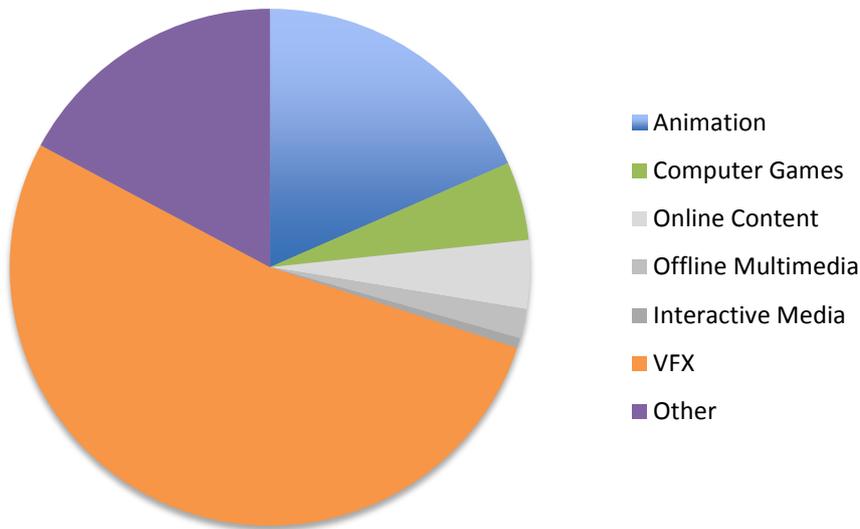
Considering all those working in the VFX sector 2,600 (38%) (C) are engaged in other roles and 62% are animators:



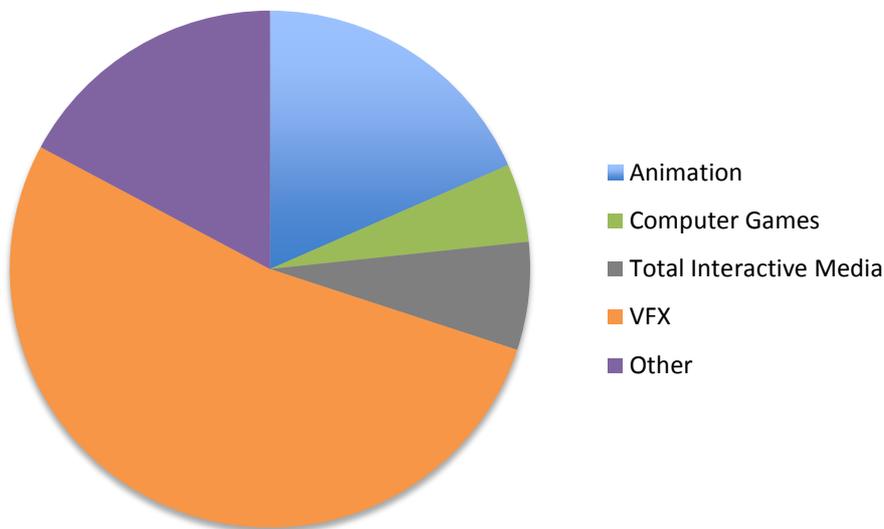
5.27: Total Employees split in the VFX Sector

The remainder of creative media Industries counted by Creative Skillset but not investigated in detail here, employed 6,750 people as animators leaving 1,410 working elsewhere (8,160 total animators minus 6,750 total accounted for). The remaining Creative

Media Industry sectors account for 17% of animation occupational group employment:



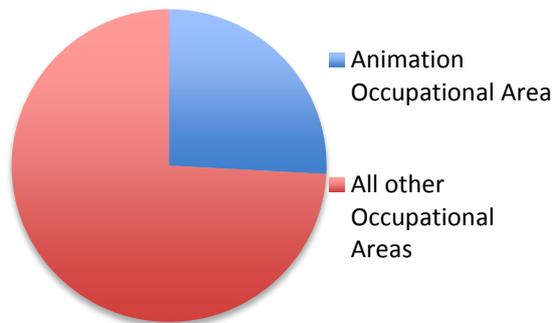
5.28: Total Proportion of Animators per Sector (Including Interactive Media sector split)



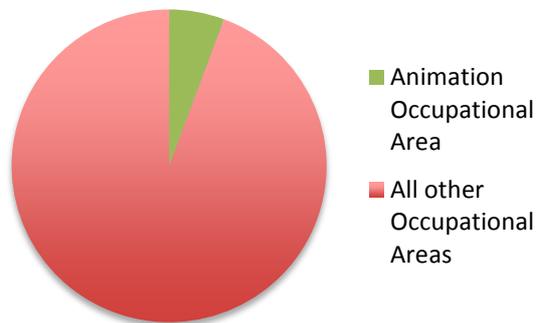
5.29: Total Proportion of Animators per Sector

The charts above highlight the number of Animators working in each sector, it can be seen that VFX is the greatest employer of animators (53%), followed by Animation (18%), 17% of animators work in one of the thirteen other defined sectors. Interactive Media accounts for 7% and Computer Games 5% of those working as animators in the UK in 2009.

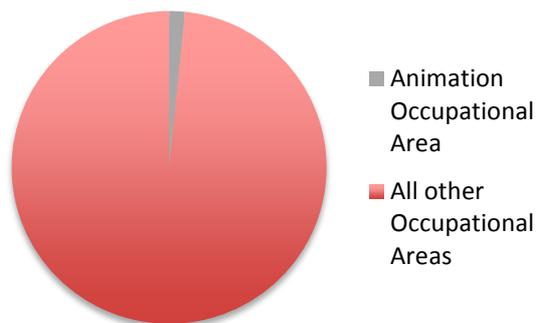
In comparison, the proportions of those working as animators employed in each pinpointed sector were as follows:



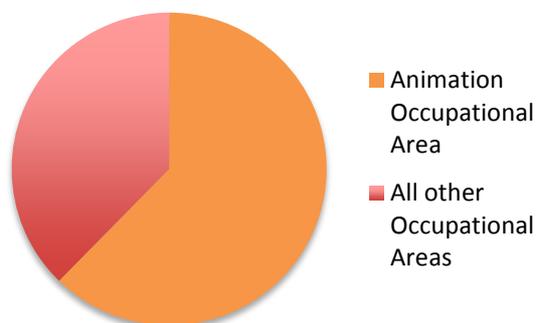
5.30: Total Employees split in Animation Sector



5.31: Total Employees split in Computer Games Sector



5.32: Total Employees split in Interactive Media Sector



5.33: Total Employees split in VFX Sector

From the 2009 census findings above, it can be seen that 62% of people employed in the VFX sector are animators, followed by 35% in the animation sector, 6% in computer games and 2% in interactive media.

Considering the 17% shortfall, it was essential to provide parity in comparison using only figures based on the selected sectors. In order to ascertain figures for this, the entire employment within the selected sectors was calculated:

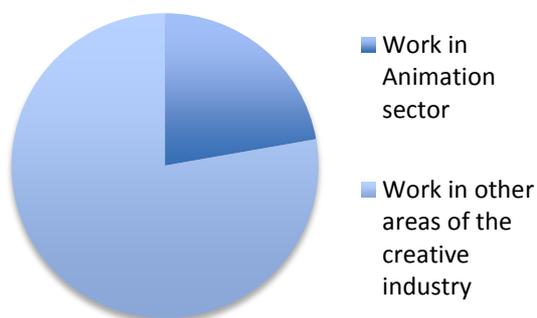
Sector	Total Employment
Animation	4,300
Computer Games	7,050
Online Content	27,550
Offline Multimedia	2,750
Other Interactive media	3,950
Total Interactive Media	34,250
VFX	6,900
TOTAL	52,500

5.34: Full Employment within all Selected Creative Skillset Sectors. Information adapted from Creative Skillset Census 2009 (Y003_asset_14505)

Given the overall animation employment figure 8,160, the total sum of animators known only to be working in the selected sectors was used; this totalled 6,750 (rounded to nearest 50 by CSS). Results for the sector split by occupational areas (C) were the same as previously calculated so these figures remained unchanged.

Animation

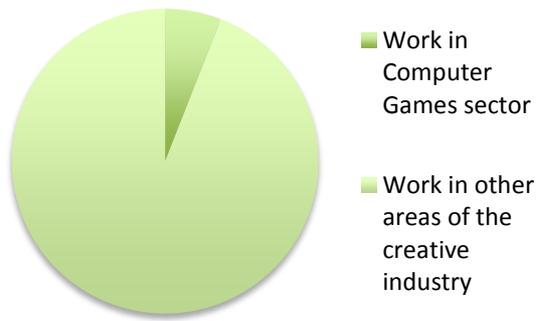
The overall UK percentage total for employment of animators in all selected sectors equates to 13% with just under 3% of this total working in the animation sector.



5.35: Total Animators working in the Animation sector and selected Creative Media Industries

Comparing just the four selected sectors, 22% of animators work in the Animation sector and 78% work in either Computer Games, Interactive Media or VFX.

Computer Games

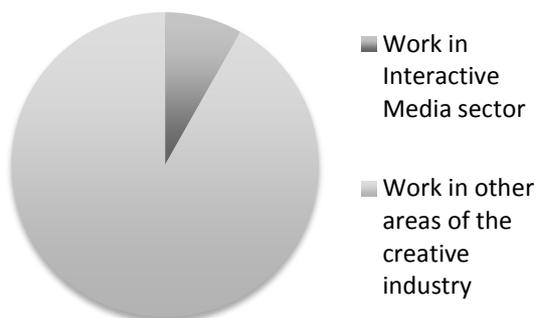


5.36: Total Animators working in the Computer Games sector and selected Creative Media Industries

6% of animators work in the Computer Games sector and 94% are employed in Animation, Interactive Media or VFX.

Just under 1% of all those employed in the selected creative media industries work as animators in the Computer Games sector.

Interactive Media

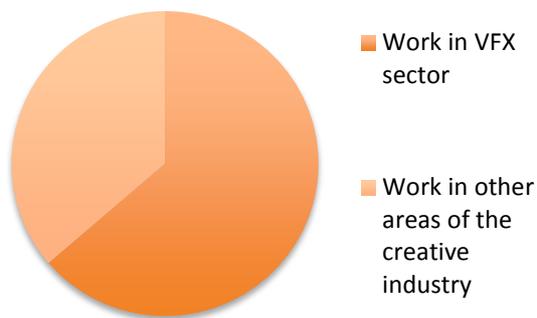


5.37: Total Animators working in the Interactive Media sector and selected Creative Media Industries

8% of Animators are employed in the Interactive Media sector and 92% are employed in the Animation, Computer Games or VFX sectors.

Just over 1% of those employed in the selected creative media industries work as animators in the Interactive Media sector.

VFX

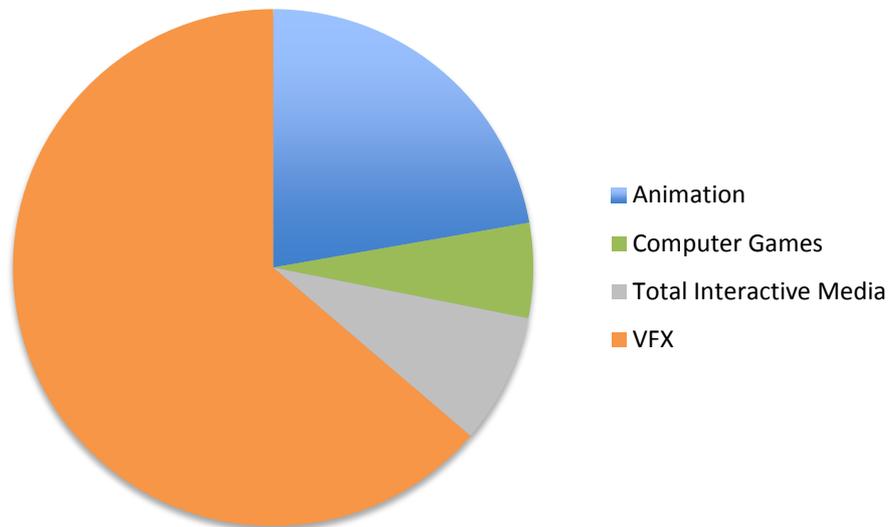


5.38: Total Animators working in the VFX sector and selected Creative Media Industries

64% of animators are employed in the VFX sector and the remaining 36% are employed in Animation, Computer Games and Interactive Media.

Just over 8% of those employed in the selected creative media industries work as animators in the VFX sector.

Although the proportions of animators per sector will be the same as previously reviewed it is noteworthy at this stage to compare this, considering only the selected sectors. This will be a valuable comparison with the test data later in this chapter:



5.39: Total Proportion of Animators per selected Sector

The chart above records the number of Animators working in each selected sector only. In comparison to chart 10 (p.234), VFX is still the greatest employer of animators (64% as apposed to 53% previously), followed by Animation at 22% (18% on Chart 10). Interactive Media accounts for 8% (previously 7%) and Computer Games 6% (in comparison to 5%) of those working as animators in the UK in 2009 according to the Creative Skillset Census data.

Triangulation of data from TCR All Segments

The outcomes generated from the application of the UK TCR data will be examined using the same methods as previously applied to the Creative Skillset UK Census findings. These findings will be compared with the UK Creative Skillset outcomes.

Example Formula for Calculations:

All data applied within this section is derived from my research work with TBR using TCR data, the original data can be referenced in appendix 5.5. The breadth of occupational classifications gives further opportunities for analysis of the employment landscape in each related sector.

UK	Animation Sector	Rest of selected sectors		
Animation Occupational Group	A) Total Animators working in the identified sector (Tab 7)	B) Total Animators		
	SOC 3411 L11	SOC 3411 Tab S8, D11 + Tab S9, D11+ Tab S10, L11	With Closely Related SOCs (Tab S8, D11 + Tab S9, D11+ Tab S10, L11) + SOC 5499 (Tab S8, D7 + Tab S9, D7 + Tab S10, L7) + SOC 3416 (Tab S8, D10 + Tab S9, D10 + Tab S10, L10)	With All Related SOCs (Total all) Tab 8, D15 + Tab 9, D15 + Tab 10, L15
	With Closely Related SOCs L11 + L7 + L10			
With All Related SOCs SOCs L15				
All other occupational areas	E) L17	F) Outside of SOC area Tab S8, D17 + Tab S9, D17 + Tab S10, L17		
Total	C) Total sector employment L19	D) Remaining UK footprint total Creative employment Tab S4, O20 – (B)		

5.40: Method of applying TCR employment data to the *Creative Trident* Model

As with the Creative Skillset census data, the information obtained from the TCR analysis has been examined using the *Creative Trident* Method. The table above serves as an example to demonstrate how each aspect has been calculated, based on the TCR employment data. As with the previous method, the information can be applied to create an employment total for Animators per sector (A).

This is broken down to provide employment estimates for selected occupational groups, as highlighted in the colour coding for these sections (selections defined on p.203). These were calculated by adding each defined SOC employment total together within the Animation sector to create employment totals for each group. Next, the total number of animators working in the selected sectors in the UK was calculated (B).

There are three options for review of the totals relating to the defined SOC classifications and these are colour coded. These outputs were calculated through the total sum of employment within each defined SOC for each sector beyond Animation (Computer Games, Interactive Media and VFX). Total sector employment (C) includes all SOC codes and gives the total employment (including animators) in the sector.

The UK total creative employment for all the selected sectors is included in (D), whereby the total number of employees who are not in the selected SOC's (B) can be calculated, or as with the Creative Skillset review, the proportion of total creative employment minus all animators can be found in section (D). Additionally, the data is able to provide the proportion of non-identified SOC codes related to the sector (E), and the rest of the selected sectors (F). In terms of sector (E) the quantity of other occupational areas working in relation to the selected SOC codes for review can be ascertained.

This can be calculated as an overall total (L17) after all identified SOC's are counted, or proportions noted relative to the remainder of employment identified in section (A). (F) provides an overview of employment within the identified sectors beyond the identified SOC's.

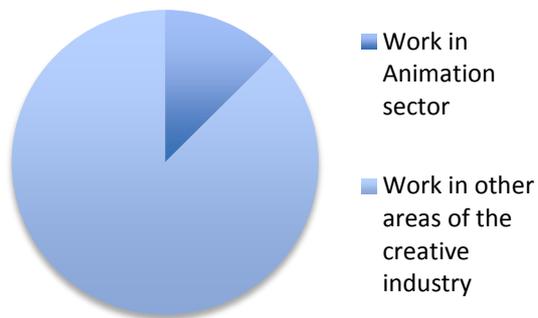
Workings for the selected sectors can be found in appendix 5.22

UK Animation

Headline findings:

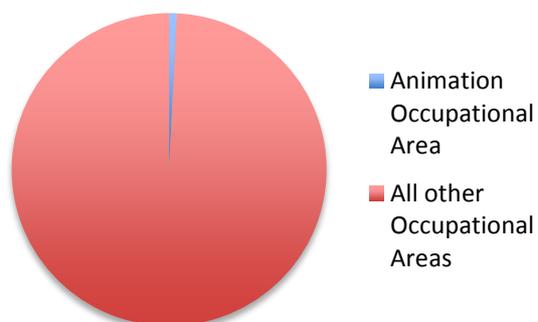
SOC 3411

13% of all animators in the selected sectors work in the animation sector (A), 87% (B) work in the other selected creative media sectors.



5.41: Total Animators working in the Animation sector and selected Creative Media Industries

Of the total employees in the animation sector 96% (C) are not animators and 4% are animators



5.42: Total Employees split in Animation Sector

Related SOCs

10% of all related occupations in the selected sectors work in the Animation sector (A), 90% (B) work in the other selected creative media sectors.

Of the total employees in the animation sector 83% (C) are not working in related occupations and 17% are.

Closely Related SOCs

3% of all closely related occupations in the selected sectors work in the animation sector (A), 97% (B) work in the other selected creative media sectors.

Of the total employees in the animation sector 76% (E) are not working in related occupations and 24% are.

Summary

4% of the total employment in the selected sectors is accounted for by people working in the Animation sector (D) and just under 1% (considering all selected SOC's) work as animators or closely related occupations in the animation sector.

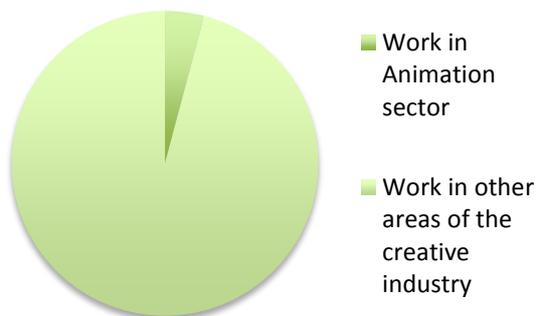
65% of rest of the selected sectors employees work outside the selected SOC area (F)

UK Computer Games

Headline findings:

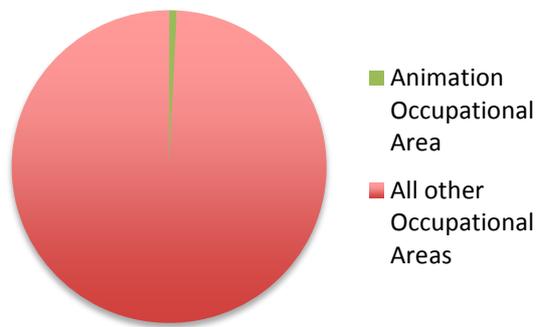
SOC 3411

4% of all animators in the selected sectors work in the computer games sector (A), 96% (B) work in the other selected creative media sectors.



5.43: Total Animators working in the Computer Games sector and selected Creative Media Industries

Only 1% of computer games sector employees are animators.



5.44: Total Employees split in Computer Games Sector

Related SOC's

1% of all related occupations in the selected sectors work in the computer games sector (A), 99% (B) work in the other selected creative media sectors.

Of the total employees in the computer games sector 99% (C) are not working in related occupations whereas 1% are.

Closely Related SOC's

8% of all closely related occupations in the selected sectors work in the animation sector (A), 92% (B) work in the other selected creative media sectors.

59% of the computer games sector do not work in related occupations, the remainder are.

Summary

7% of the total employment in the selected sectors is accounted for by people working in the computer games sector (D) and just under 3% (considering all selected SOC's) work as animators or closely related occupations in the animation sector.

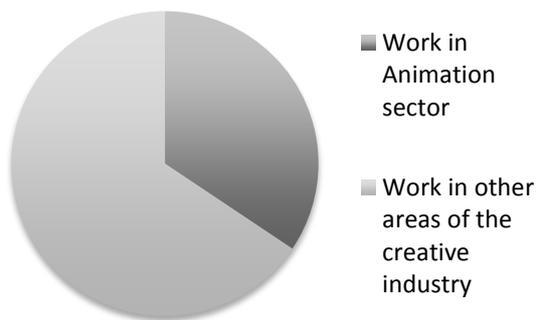
66% of rest of the selected sectors employees work outside the selected SOC area (F).

UK Interactive Media

Headline findings:

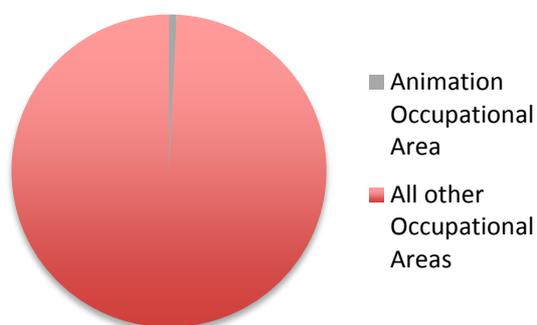
SOC 3411

34% of all animators in the selected sectors work in the interactive media sector (A), 66% (B) work in the other selected creative media sectors.



5.45: Total Animators working in the Interactive Media sector and selected Creative Media Industries

Of the total employees in the interactive media sector 99% (C) are not animators and 1% are animators.



5.46: Total Employees split in Interactive Media Sector

Related SOCs

7% of all related occupations in the selected sectors work in the interactive media sector (A), 93% (B) work in the other selected creative media sectors.

Of the total employees in the interactive media sector 99% (C) are not working in related occupations and 1% are.

Closely Related SOCs

71% of all closely related occupations in the selected sectors work in the interactive media sector (A), 29% (B) work in the other selected creative media sectors.

Of the total employees in the interactive media sector 59% (E) are not working in related occupations and 41% are.

Summary

40% of the total employment in the selected sectors is accounted for by people working in the interactive media sector (D) and 35% (considering all selected SOC's) work as animators or in closely related occupations in the animation sector.

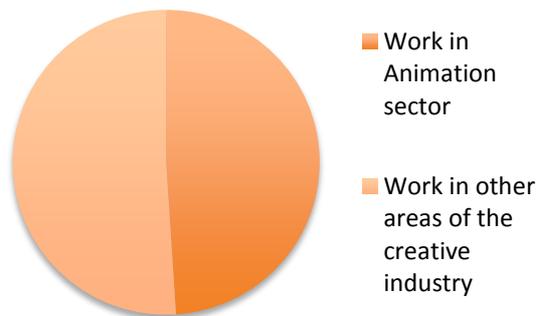
75% of rest of the selected sectors employees work outside the selected SOC area (F).

UK VFX

Headline findings:

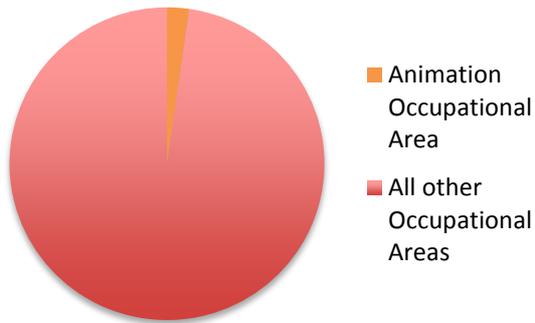
SOC 3411

49% of all animators in the selected sectors work in the VFX sector (A), 51% (B) work in the other selected creative media sectors.



5.47: Total Animators working in the VFX sector and selected Creative Media Industries

Of the total employees in the animation sector 99% (C) are not animators and 1% are animators.



5.48: Total Employees split in VFX Sector

Related SOCs

83% of all related occupations in the selected sectors work in the VFX sector (A), 17% (B) work in the other selected creative media sectors.

Of the total employees in the VFX sector 99% (C) are not working in related occupations and 1% are.

Closely Related SOCs

50% of all closely related occupations in the selected sectors work in the animation sector (A), 50% (B) work in the other selected creative media sectors.

Of the total employees in the VFX sector 59% (E) are not working in related occupations and 41% are.

Summary

30% of the total employment in the selected sectors is accounted for by people working in the VFX sector (D) and 6% (considering all selected SOC's) work as animators or closely related occupations in the animation sector.

60% of rest of the selected sectors employees work outside the selected SOC area (F).

Creative Skillset and the East of England

A revised hypothesis was proposed in Chapter 4 (p.151-155) regarding application of proportions to Creative Skillset data in order to create estimates for the East of England.

We already have information on and know the following:

The Animation sector in the East of England

18% of animators in the UK industry work in the animation sector and of all those working in the animation sector 35% are animators. We also know from Creative Skillset census data that there are 150 people (1.8% of the UK animation occupational group) working in the defined occupational group for animation in the East of England, and that between 1-24 people actually work in the sector. Therefore, an approximate number of animators based on the above data is:

East of England	Animation Sector	Rest of creative media Industries
Animation Occupational Group	7-27	Approx 150 (total employed) (Y004_asset_14503.xls) (18% of 150 = 27) 150-27 =123
All other occupational areas	A value between 1 and 24 (say taking this to be 20) $20/100 \times 65\% = 13$ $20-13 = 7$	EE Total 6,200 creative media industries employment

5.49: Creative Skillset East of England data applied to the Animation sector

All calculations for the following sectors can be found in appendix 5.24

The Computer Games sector in the East of England

Considering that 5% of animators in the UK industry work in the computer games sector and of all those working in the computer games sector 6% are animators. We begin to discover issues with the application of the above model due to regional fluctuations and proportions not being exact for each of the twelve government office regions.

We know that the East of England has approximately 150 animators working within the creative media industries and that the computer games industry has 1,300 workers within it.

In applying the same model we find that 5% of 150 is 7.5 so 8 people should be employed as animators in the computer games sector in the East of England. If for the UK we know 94% of those working in the computer games Sector are not animators that leaves 6% of 1300 to be animators meaning a total of 78 working as animators. Therefore, a significantly wide range of possibility between 78 and 8 animators could be working as animators in the computer games industry in the East of England.

The Interactive Media sector in the East of England

Reflecting on the more complex interactive media sector, known data was combined in order to ascertain the number of animators employed in this sector. The final sum gave a figure of between 10-11 animators, this range was much closer to one figure, than any of the previous two sectors.

The VFX sector in the East of England

Lastly attention was focused on the VFX sector in the East of England. In ascertaining the data on employment within this sector from Creative Skillset Census data (Appendix 5.10_asset_14506) it was found that the East of England had zero employment in the VFX industry- no one was found to be working in any capacity within this sector in the region.

Looking further at this data for regional VFX employment in the UK it was found that outside of London the regions of Wales and Northern Ireland had between 1-24 employees working in this industry. London combined had 6,400 including West London (150), Central London (6,250) and North London (1-24) although not appearing to be counted at all in the overall total.

The only region in England to have any employees working in the VFX sector was the North East with 500 workers. In terms of relating this to the model, it reinforced the view that regional data could not be identified, with no employment in this sector in the East of England, there can be no animators working in this sector despite the model pointing towards the a calculation of 53% of UK animators on average to be working in VFX.

In relation to the findings it was difficult to believe that there were zero employees working in VFX in the East of England, this query was further reinforced by the notable lack of employment distribution throughout the UK. It was to be expected that those identified

areas would contain 'peaks' of employment, however zero seemed very extreme for other regions in comparison. Further exploration of these figures relating to VFX found that in addition to the 500 working in VFX in the North East of England, 250 people were working as animators in the whole region.

If we were to apply this model, approximately 133 people would be animators, meaning that around 25% of the sector's employment would be animators, this would be way under the 53% which is the UK average. Given that the North East is the next largest identified cluster for this sector it would be expected that the proportional model would bear some resemblance to this region.

Conducting this test of Creative Skillset data reinforced the lack of reliability at regional level It leads this research towards two conclusions:

1. There is no viable comparison between government areas in the UK as this method applied above doesn't take note of or consider regional clusters and fluctuations.
2. The validity of Creative Skillset data is questionable as it contradicts independent data and cannot be taken as conclusive at this level- see TBR work and my own census data, discussed later in this chapter.

TCR Regional Data Pivot Tables

Through application of the TCR data to the East of England region, we are limited to the selected sector's total employment and therefore cannot look at the rest of the creative media industries as has been done with Creative Skillset data. The Creative Skillset data could not be disaggregated beyond the information provided in the previous section. Consequently there will be some issues with parity of comparison at regional level.

Within this next section the focus is only on the selected 4 digit SOC occupations in comparison to the total animators for the region. Because of the method of calculation the proportionate comparisons for the occupational balance within each sector remain the same as the UK and therefore will not be discussed.

The Animation sector in the East of England

East of England	Animation Sector	Rest of selected sectors		
Animation Occupational Group	A) Total Animators working in the identified sector (Tab 7a)	B) Total Animators		
	SOC 3411 2 (10%)	SOC 3411 18 (90%)	With Closely Related SOC's 59 (90%)	With All Related SOC's (Total all) 764 (99%)
	With Closely Related SOC's 7 (11%)			
	With All Related SOC's 10 (1%)			
All other occupational areas	38 (95%)	F) Outside of SOC area 35+961+190 1,186 (98%)		
	33 (83%)			
	E) 30 (76%)			
Total	C) Total sector employment 40	D) East of England total Creative employment 40+60+1640+240 1,980- 40= 1,940 (98%)		

5.50: TCR East of England data applied to the Animation sector

The table above shows that according to the TCR data 10% of all animators (SOC 3411) employed in the East of England work in the animation sector and 11% of all animation related occupational SOC's work in this sector in the East of England. This is above the UK average by 1%, however purely for animators (just SOC 3411) down 2%.

All calculations for the following sectors can be found in appendix 5.25

The Computer Games sector in the East of England

In terms of the computer games sector, 0% of all animators (SOC 3411) employed in the East of England work in the computer games sector and 0% of all animation related occupational SOCs work in this sector in the East of England. This is below the UK average by 1%, however purely in relation to animators (just SOC 3411) down by 4%.

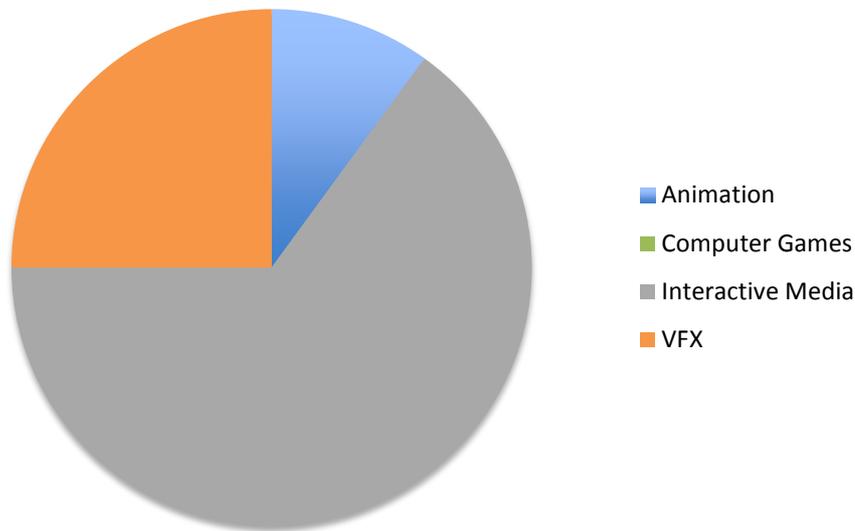
The Interactive Media sector in the East of England

For the interactive media sector 65% of all animators (SOC 3411) employed in the East of England work in the interactive media sector and 20% of all animation related occupational SOCs work in this sector in the East of England. This is above the UK average by 13% and purely in relation to animators (just SOC 3411) it is up by 31%.

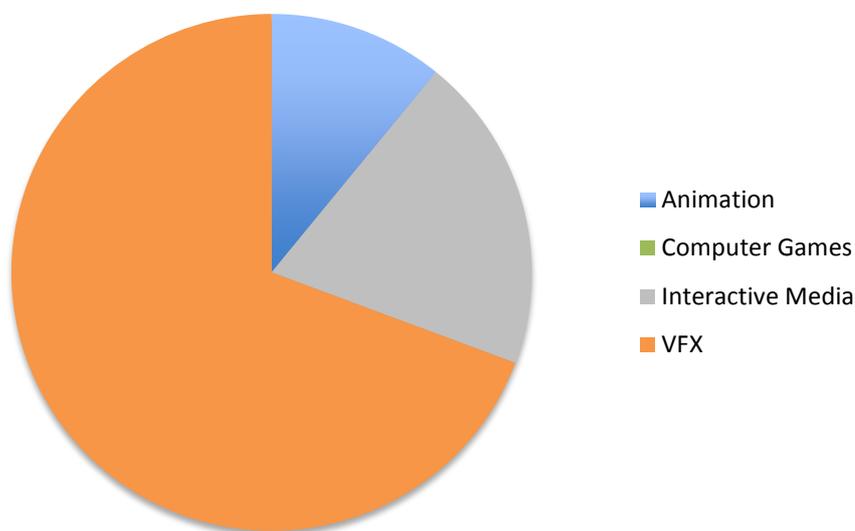
The VFX sector in the East of England

Finally the VFX sector findings demonstrate 25% of all animators (SOC 3411) employed in the East of England work in the VFX sector and 70% of all animation related occupational SOCs within this sector work in the East of England. This is below the UK average by 13% and purely in relation to animators (just SOC 3411) it is below by 24%.

NOTE: At this level the margin of error is of approximately 1%, however all workers are accounted for in one area or another.



5.51: SOC3411 (Animators) employed in the East of England



5.52: Related SOC's employed in the East of England

From the above comparisons it can be seen that the occupational areas within the sector of animation (10% and 11%) and computer games (0%) remain consistent within the analysis for the East of England. Whereas the interactive media sector includes 65% of employment in SOC 3411 and then drops down to 20% in the related SOC review. Conversely, the VFX sector is responsible for 25% of employment within SOC 3411 and then moves up to 70% of all employment when considering related SOC's.

'Control' census test East of England

Upon review of the final comparative section of fieldwork, the control census (Appendix 5.20) revealed that out of the 93 related companies found in the East of England in 2009, 57 were actually animation companies. This was defined by self-classification and checked by the author's own review of their output. From the 57 identified companies, 16 responded to the telephone survey, providing findings as follows:

Averages

The total count of employees within these 16 companies was 68 people. Of the 68 employees, the respondents identified 21 employees whose primary role was to animate. By taking the 16 companies and averaging the employment I found that each company had around 4 employees (4.25). Considering just those whose primary job is to animate, it was found that the average for the 16 companies was 1 employee per company (1.31).

Employees

Given the known company frequency of 57, it could be estimated that the average total employment for animation companies in the East of England was 228, with 57 of that total being primarily animators. This therefore left 171 employed in the animation industry in this region but in other occupational roles. This demonstrates that exactly 25% of the animation industry workers in the East of England are employed as animators.

Freelancers

Considering the added depth of the survey responses in relation to freelancers, within the 16 returns 25 freelancers were employed by the companies. On further questioning, 8 confirmed that they employed freelancers 'as and when required' with one company noting that they employed up to 150 freelancers when they were working on a film.

In review of freelance occupations, 3 (12%) of the 25 freelancers were freelance animators. Of the 16 respondents, 9 said they employed freelance animators 'as and when required'.

Due to the nature of this approach, and similar to the issues encountered by Creative Skillset when exploring data at this level, it is impossible to gain an accurate figure for freelance Animators working in this area. The figures above provide an indicative snapshot

and will be useful in comparison but cannot be considered comprehensive. As identified by Creative Skillset, freelancers may inadvertently have been collected through this method and noted as a company or (as above) picked up through survey responses from those interviewed. With many companies giving the response 'as and when required' it is impossible to measure the frequency and therefore gain any form of accurate number beyond an estimation for the percentage of this workforce in the region. We can however ascertain some idea of the balance of those working as freelancers in this sector but this does not account for those either not working or not picked up by the survey.

The regional geographic location for each of the 57 identified companies will be mapped within the next section of this chapter.

Animation Sector Industry Mapping

Within this section available company data from the segmented TCR work has been mapped using postcode data applied to Google maps. This has produced two maps of the UK, one including all identified Animation companies and the other including all identified VFX companies. Each UK map includes the regional boundaries applied throughout this study. As the company addresses for the Computer Games and Interactive Media industry could not be provided by TCR within the project remit, these have been excluded.

Company entries can be viewed by rolling over the individual icons or clicking on them for the full address. Each company has a #number, this number relates to their entry within the TCR data (Appendix 5.2_TCR_Animation_Database_Companies) where further information on age and number of employees can be found. It is intended that the mapped distribution of the companies will allow for an enhanced understanding of clusters within the segments.

(All references are contained with appendix folder 5.16 Final Mapping)

VFX Companies

Appendix 5.18_TCR_VFX.html

The process of mapping this segment has demonstrated the high volume of companies identified within this subsector 1,845 in total (Further review of the accuracy of this selection will be made in the next section of this chapter). London has the highest intensity with 580 companies and this popularity is reflected in the company volumes within its adjoining regions.

Studying the rest of the UK, notable clusters are to be identified around Manchester (North West), Bradford, Leeds and Sheffield (Yorkshire and Humber), Birmingham (West Midlands), Bristol (South West), Cardiff (Wales), Glasgow and Edinburgh (Scotland) and Belfast (Northern Ireland).

Animation Companies

Appendix 5.17_TCR_Animation.html

In comparison to VFX the Animation company data was more evenly distributed around the UK. Smaller groupings were identifiable, situated predominantly around major regional cities. The greatest concentration of companies was found in London and its adjoining regions- particularly the South East. This was followed by a significant intensity in the North West (Manchester, Liverpool and Preston) and Yorkshire and Humber (Wakefield and Leeds) regions.

The city of Bristol had the highest volume of closely located animation companies (7) outside of London. Wales had clear concentrations along its South coast with the majority of companies situated in proximity to Cardiff. Scotland and Northern Ireland had low company counts; for Scotland the majority of companies were based in Glasgow and Edinburgh and for Northern Ireland, Belfast.

Comparative Regional Company Data

Appendix 5.19_Comparative TCR_Control_Animation

For the purposes of comparison Animation companies from the control survey and the TCR data were mapped against one another for the East of England region only. Both sets of data demonstrated similar geographic patterns with high concentrations in Hertfordshire and Essex, particularly bordering London. TCR had identified a total of 25 companies operating in the region as opposed to 57 found from the control exercise. The control identified 14 while the TCR found 9 companies in Hertfordshire, in Essex 8 companies were identified through the TCR search and 10 through the control.

Other concentrations were found around the major cities and towns of Cambridge (Cambridgeshire), Norwich and Kings Lynn (Norfolk). A definite pattern of companies from both sets of data appears to run along the A12 through Suffolk and Essex. From review only of the control data, there is a higher frequency of identified companies situated in the Norfolk, Suffolk and Cambridgeshire regions, demonstrating clusters in Norwich, Kings Lynn and Bury St Edmunds, these companies have not been identified by the TCR data.

Comparative Regional Employment Data

The table below considers the comparative findings from the three main areas of exploration conducted within this study. The data from each of the experimental methods explored within this chapter has been applied using the *Creative Trident* Methodology to create as direct a comparison of the findings as possible. This data can only be compared at this level for the East of England and only considering the sector of Animation because this is only where the study has all three full comparative datasets:

East of England	Animation Sector			Rest of Creative Media Industries (As defined)		
	TCR Data	Creative Skillset Data	'Control' Survey	TCR Data	Creative Skillset Data	'Control' Survey
Animation Occupational Group	SOC 3411 = 2	7-27	57	SOC 3411 = 18	123	No Information
	Selected SOC = 7			Selected SOC = 63		
	All selected SOC= 10			All selected SOC= 764		
All Other Occupational Areas	Not In SOC 3411 = 38	13	171	1,186	1,697 (Sectors explored in this study)	No information
	Selected SOC = 33					
	All selected SOC= 30					
Total Workers	40	1-24	228	1,940 (All sectors explored through this study)	1,800 (All sectors explored through this study)	No information

5.53: East of England Comparative data

Looking firstly at the numbers of animators working in the animation sector in the East of England, all employment levels are below 57- the highest potential number of animation employees as found through an average sum from the 'control' survey. This survey does not take into account freelancers working at the time and only considers actual employees working as animators, on the contrary the Creative Skillset estimated figures are based on a combination of freelancers and employees demonstrating a much lower potential

employment level and is more similar to the TCR experimental data. The TCR data is based on a composition of employed and freelancers (see Chapter Four, p.190) and provides a breakdown of the potential occupational areas workers in this segment are engaged in and demonstrates a greater amount of animation segment workers working outside of the selected SOC codes, each total is considerably higher than the Creative Skillset triangulated estimate of 13. The control survey estimate was by far the highest at 171. Comparatively, the TCR (all selected SOC's) and control survey data occupational splits were both 25% Animation Occupational group to 75% all other occupational groups. The Creative Skillset data was between 29% and 71%.

In review of those animators working outside of the defined subsector, no data could be obtained from the control survey. The relevant data from the TCR research was lower than the Creative Skillset estimate of 123 considering the closely related SOC selection (63) but much higher (764) when all related SOC's were included. For those employed within all other occupational areas in the selected subsectors explored within this study, TCR found there to be 1,186 while Creative Skillset, 1,697 employees. The employment totals for those working outside of the animation subsector in computer games, VFX and interactive media within the region were 1,940 for TCR and 1,800 for Creative Skillset. These final totals demonstrate a strong similarity.

Section Two- Analysis of Findings

2009- TCR data- A comparative snapshot of the Animation Sector

Evaluation and causes of findings

Having presented the findings and calculations at nominal value within the first section of this chapter, this next section provides a comparative snapshot of the animation sector. The following outcomes will be evaluated considering findings and causes for those findings:

- Company count and employment- TCR and Creative Skillset data comparisons at national and regional case study level
- Understanding occupational breakdowns and animation workforce distribution using national datasets
- Correlative triangulation of UK and regional Creative Skillset and TCR data
- Comparative visual mapping using TCR and control census data

Company Count

The East of England ranked more highly than expected in terms of company volume within the four identified sub-sectors operating in this region. Overall the region was placed fourth out of the twelve Government regions explored. When considering each sector the region was generally positioned in the upper quartile of the study (Animation-fifth -25 companies, Computer Games-fourth -25 companies, Interactive Media –third -275 companies and VFX-fourth -125 companies). The approach taken to identification of the volume of sector specific activity at this level, and the method of identifying companies via SIC codes and key word searches provides greater opportunity for replication across sectors and therefore greater comparison.

The outcome of regional data is credible, although perhaps slightly over-optimistic, particularly in the case of VFX . Given the author’s knowledge of the sector and associated sectors, it would seem largely feasible that the East of England would have this volume of companies operating during the defined period.

Considering the mapped data in relation to the UK animation (Appendix 5.31) and VFX sectors (Appendix 6.5), it is possible to understand and compare the distribution of

companies and potential clusters. It is apparent from the data that there has been a significant overestimation of identified companies in the VFX sector.. This research identified 1,845 companies in the UK, a massive increase in comparison to the 84 (NESTA, 2011, P.16) estimated to be operating in the UK in 2008. A review of company names reveals a substantial number of non-specific entries relating to film, television, video and audio production companies. Without a definitive list it is difficult not to speculate about the distribution of companies within the UK or at regional level.

Studying the data mapped as it is, there are still definable clusters. Considering the list of companies at a broader level (i.e. as production companies) these clusters generally appear to be around agglomerative media hubs. The North West, Yorkshire and Humber cluster potentially draws from BBC MediaCity and the ITV studios in Salford and Leeds. There is a notable level of drama production in Leeds and a rapidly expanding media industry in Bristol. This includes interactive media and computer games, and animation. Manchester and Cardiff are both active areas for TV production and Glasgow and Edinburgh are centres for the development and production of computer games.

The animation sector is less defined but still identifiable with particular clusters found beyond London, in the North West, and in the Yorkshire and Humber regions. The general distribution of companies appears to echo that of the 'VFX' segment (with the exception of Sheffield). While it is clear that these companies may not necessarily be specific to VFX, the majority do have strong ties with varying areas of film, TV and media production, emphasising the agglomerative tendencies of related subsectors of the industry.

In comparison to the rest of the UK, the East of England has less defined hubs. The 'VFX' and animation sector demonstrates that the majority of companies are situated near London in Essex and Hertfordshire with some concentrations around Cambridge and Norwich. The findings further reinforce the propensity of these identified companies to group where similar or related industries are based.

In relation to the subsectors of computer games and interactive media, the accuracy of the count is less transparent, and as discussed in Chapter 4 (p.181) limited to key word searches in one specific SIC code. This was disappointing as I was unable to freely access the regional location of companies aligned with the names and activities of the businesses. Given the time available and focus of the study it was elected that no further resources

could be applied to this. In terms of company records it was possible to ascertain a full list for all UK regions and a count of how many businesses exist in each region.

To contextualise the given number of companies in relation to computer games, comparisons were made with existing literature. UK estimates for the total number of Computer Games companies had ranged from 135 (UKTI, 2006) to 224 in 2008 (NESTA, 2011, p. 16). Although slightly higher than expected for the East of England (25), it was feasible considering UKTI had counted eight main companies operating in the East of England in January 2006 (Appendix 5.26_UKTIGameslist) and the mapping work of the UK Games industry found there to be 151 video games companies in the region (NESTA, September 2014, Section 3a).

Reflecting on the interactive media segment, very little existing comparative regional industry data on this subsector could be sought given the breadth of coverage for this division. Therefore, for the purposes of this analysis it had to be considered generally correct based on the reliability of the methodological process and comparative sector findings.

Full comparison for the UK data, including Creative Skillset census response data and estimated company counts:

UK		Creative Skillset Census Responses	Creative Skillset companies on census mailing list	TCR Company Count
Animation		50	2,622 (487 with regional location)	270
Computer Games		27	385 (374 with regional location)	290
Interactive Media	Online Content	103	12,597 (1640 with regional location)	2,550
	Offline Multimedia	17		
	Other Interactive Media	20		
	Subtotal	140		
VFX		9	Facilities 6,145 (2,578 with regional location)	1,600
Total		226	21,749 (6,438 with regional location)	4,710

5.54: 2009 UK Creative Skillset and TCR Subsector Sample Comparison (Sources: Creative Skillset Census Report 2009, 4.44_Creative SkillsetCensus09_ResponseSector and TCR company database and 5.33_2009 Creative Skillset census mailing list compiled by Rachael Keene 23/06/2015)

Following resumed review of this work with the Creative Skillset Research Team, it has finally been possible for me to obtain overall company estimates beyond the sector of animation from Creative Skillset for the 2009 census and therefore ascertain the response rate that the estimated employment figures are based on. As noted in Chapter 3 (p138), Creative Skillset had estimated that there were 250+ animation companies operating in the UK at this time, reinforcing the probability that the TCR company count was accurate.

The newer figures demonstrate that there were thought to be 2,622 companies on the database for the animation sector at this time, and of this number, 487 had identified locations. These company counts are considerably higher, although more comparable, when those with identified regional location are only considered in relation to TCR data. A breakdown for the subsector of VFX only could not be provided as separate from facilities. Considering the response rate given that there was a total of 32,068 identified companies (Appendix 5.33 Census 2009 Breakdown) on the Creative Skillset census database with

1,010 responses received (Creative Skillset 2009 Census Summary), this gives just over a 3% UK wide response rate for this period.

The employment statistics for the selected sectors are inconclusive. Given the proposed accuracy of the company count produced by the TCR data and the method applied to arrive at this (Chapter 4, p.186), it would be assumed that the employment level within each sector would be the most accurate. Within the table taken from Creative Skillset’s related work in 2009, the comparison is made with Labour Force Survey (LFS) gathered by the ONS during the quarter April-June 2009.

In contrast the TCR employment data is also based on LFS data but using Annual Population Survey data (to which the LFS contributes quarterly) meaning the APS has a larger sample size and is therefore more robust. The Creative Skillset data is based on its own census and weighting methodologies; in terms of accuracy the full comparison with the LFS shows Creative Skillset data to be similar in total. As can be seen from table 2 below there is insufficient data to base any assessments on for the sectors explored within this study:

5.55: Employment statistics (2009)

UK	Labour Force Survey (LFS)	Creative Skillset	TCR (Based on APS)
Animation	59.11/2 Video Production Activities 7,000	4,300	1,415
Computer Games	-	7,000	2,545
Interactive Media	-	34,250	21,560
VFX	-	6,900	10,510
Total	-	52,450	36,030

5.55: Employment statistics (2009) Source: 4.6_Comparison_LFS_Creative Skillset.docx (Chapter 4)

Table 1 demonstrates the number of survey responses that the Creative Skillset employment coefficient data has been based upon in relation to all aspects of their own defined occupational groups. The TCR data is based on company figures and a small amount of estimation, therefore the balance of reliability in respect of occupational data is potentially stronger and comparable across occupational groups using the SOC classification system.

Given the detail of company location, the data above extracted from the TCR database can be disaggregated into regional specific creative industry sectors. In the East of England,

there was considerable variation in the ranking for each sector in relation to the rest of the UK regions. Employment levels ranged from animation- fifth- 40 employees, computer games- eighth- 60 employees, interactive media- third-1,640 employees and VFX-eighth- 265 employees. Creative Skillset and TCR data show very similar company counts In comparative regional data for animation and computer games sectors.

For interactive media this is not the case, highlighting the East of England as the third smallest concentration of companies with only the West Midlands and Northern Ireland having less. Speculatively this could be due to a high number (10,957 companies) having no location noted on the database. Similarly, it is impossible to comment further on the VFX subsector as there are no additional breakdowns of the proportion of VFX companies operating in this area. Considering the employment comparisons with TCR, and given the lack of similarity at a UK level, comparability continues to be inconclusive at a regional level:

Sector	Creative Skillset companies on census mailing list	Creative Skillset East of England regional employment data	Number of identified companies on TCR	TCR East of England regional employment data
Animation	21	A value between 1 and 24*	25	40
Computer Games	18	1,300	25	60
Interactive Media	38	500	275	1,640
VFX	448 (facilities)	0	105	240
Total	525	1,820*	430	1,980

5.56: East of England Sectoral data comparison (2009) (For Creative Skillset data tables, Chapter 5, Appendix 5.10_asset_14506-1, 2009 Creative Skillset census mailing list compiled by Rachael Keene 23/06/2015)

* Taking this figure to be 20

The employment totals above have some correlative properties.

Having this detail of employment data in relation to firms meant that it was possible to better understand the average size of companies in this region within the selected sectors:

Sector	Average number of employees per company	
	TCR*	Creative Skillset
Animation	2	Less than 1
Computer Games	2	72
Interactive media	6	13
VFX	2	0

* Rounded to nearest ten (based on TCR data)

5.57: East of England average number of employees per company sectoral data comparison (2009)

Correspondingly the average figures generated from the regional Creative Skillset employment and firm data provide little comparison, particularly in the case of VFX where no employment was identified for this region. Given that there were 448 facilities companies in the region, it could be assumed that there would be a small proportion of these companies working primarily in the area of VFX.

In comparison to UK averages, the Creative Skillset data shows a compelling decline for the computer games sector with an average of 72 employees working at each company in the East of England and only 18 for the whole of the UK, similarly with interactive media. This could be attributed to the large number of firms without location information, therefore only recognised at UK level and reducing the data for average employees significantly.

5.58: UK average number of employees per company sectoral data comparison (2009)

Sector	Average number of employees per company	
	TCR*	Creative Skillset
Animation	5	2
Computer Games	9	18
Interactive media	8	3
VFX	6	Not available

* Rounded to nearest ten (based on TCR data)

5.58: UK average number of employees per company sectoral data comparison (2009)

At this stage within the refinement of the data these employees were uncategorised in terms of their occupation, meaning that they could be engaged in any animation related or unrelated occupations. From comparison with the overall UK figures it is clear that the companies situated in the East of England were characterised on average as SME's (Micro Enterprises). These findings were as expected, matching the authors' knowledge of the

regional industry and experience of local enterprise. Some anomalies emerged from the TCR data: the high level of employees in the East of England and throughout the UK in the Interactive Media industries and the large number of VFX companies as being pinpointed within the Eastern region.

Reasons for these outcomes could be attributed to the period (2009) which saw the growth of online/ interactive media, platform diversity and a great many new start-ups in this area. This is at odds with the Creative Skillset data from the time and without the detailed company description information for this sector it is impossible to form any sound analysis beyond speculation, based on the actual company data. In considering VFX, actual company data can be reviewed although not compared with Creative Skillset. The review of the TCR data alone has highlighted some potential limitations within the methodology:

- Errors can result in the transfer of SIC codes from one period to another, in this case transfer from SIC 2003- SIC 2007. Firms may be classified in the wrong coding during this process and so this may result in historical or temporal discrepancies.
- Human error can factor greatly in the collection and maintenance of large volumes of data. This can range from initial classification upon registration, data input-misspellings, spacing etc. updated survey data from call centre analyses and information from non-specialists.
- Company owners do not necessarily provide a description of their business that either accurately reflects their activity, or reflects the full range of their activity (E.g. Computer Related Services). Therefore when analysts are looking for keywords in the line of business, they will not be identified.
- Whilst every attempt can be made to produce appropriate combinations of keywords in the search terms, it cannot be fully guaranteed that the database will be free of a small percentage of irrelevant entries such as those mentioned in Chapter 4 p.186 -Eocg (Eastern Oswestry Community Group). Issues such as this will only be picked up through manual checking.
- Due to the nature of the process, if a key word is captured in the company name it is apportioned to one classification, even if the LOB contains a more adequate explanation of activity. For example:
 - CoName: 3 D Com Ltd.
 - LOB: Visual Effects Production Services
 - Keyword: 3D

Meaning it was placed in animation. Whereas if a keyword is not found in a company name it passes through the process on LOB.

(List developed from TBR and Jodie Wick collaborative work, 2010)

Despite the extensive time and effort spent on perfecting the segmentation process and key word searches, in the case of the VFX sector and potentially also for the interactive media industries, the search terms were probably too broad. On review of VFX, the diversity of company names plus uncertainty around activity/classification leads to the conclusion that findings for these areas may not be reliable. Considering the animation and to a certain extent the computer games sector, (although once again companies could not be checked for Computer Games), the reliability of these findings is likely to be stronger. This is because selected companies from these sectors were used as 'bench-marks' when devising the methodology, searching the database using key companies to ascertain SIC boundaries and definitions. In terms of business activity, animation and computer games companies are also more easily identified by key words or line of business and therefore classified. Considering much of the identification is based on personal classification or has been augmented by statisticians working from secondary data, the methods are clearly open to a certain level of error.

Full information on missing companies and reasons why they are not included in the database, can be found within the TCR Animation Database (Chapter 5, Appendix 5.2_TCR_Animation_Database_Companies, Tab Missing_Companies). Reviewing these missing companies gave a very good indication of the limitations of this process. The main issue in identification was the lack of any key word in either the company name or description, secondly some companies were not on the database. Finally, the initial SIC search parameters for the footprint of the study meant that certain companies were not included, as they sat outside of this definition due to wrong classification, or had no associated SIC classification.

The result of these limitations is that the method has produced an analysis of companies where animators are most likely to be found working, but it will be one that does not cover every single company and it is likely to include a small number of businesses that are not in the selected sectors. As such, a pragmatic approach is required, accepting that whilst it is not perfect, it offers a comprehensive alternative, capable of detailed analysis at regional level.

Understanding Occupations

The first stage of this work using the TCR data had served to identify the number of employees working in each sector and each region, based on the number of companies operating in those regions. As one of the main search/ identification criteria for companies was the SIC 2007 codes, the associated employment data could be further broken down to relate to these SIC codes. Although only at four-digit level, this provided an initial understanding of which SIC's within each sector footprint were most popular in terms of employment and if there were any trends in relation to regional dispersal. Unexpectedly SIC 6201 Computer programming activities had the highest employment with 67% (24,130 employees) working in this SIC within the footprint for the whole of the UK. Given the issues surrounding the inclusion of this SIC within the study, it must be assumed that this is an overestimation inflated by the breadth of the Interactive Media sector examined. Considering the identified animation sector only (See Appendix 6.2 for full data comparisons), a better balance of employment can be seen, and as expected SIC 5911 Motion picture, video and television programme production activities had the highest employment total with 70% - 990 employees.

As anticipated, a large majority of known animation companies on the TCR database had classified themselves within the SIC code above . Interestingly, within VFX SIC 5912 Motion picture, video and television programme, post-production activities were second with 17%-1,750 of employees, and SIC 5911 having the majority 81% - 8485. Having already established that SIC codes alone will not identify sector specific activity exactly, this investigation could not be conclusive. However, when considering the range of most popular SIC's in relation to the original selection used to identify companies, it was helpful to gauge where the majority of employment activity appeared to be found. (Appendix 5.26_UKSICDistribution_Co-Emp_ANI_VFX)

This data also served as a method to create employment breakdowns when multiplied by the standard SIC/ SOC data from ONS. Selected identified SOC codes were used, ignoring SOCs where there was no data for any of the selected SICs. This gave an overview of the level of general employment contained within the footprint, by applying UK percentage totals to the numbers known to be employed within each SIC. This method works by applying UK totals to regional numbers, relying on the premise that both the selected

company data and subsequent total employment estimates for each sector are correct. For the sectors of computer games and interactive media, their individual footprints lacked richness due to the use of only one SIC code.

In terms of employment levels for the selected footprint across the UK, 29% were found to be working within SOC 21 Science and technology professionals, 26% SOC 34 Culture, media and sports occupations, and 22% SOC 11 Corporate managers. Considering the findings for the East of England region, 36% worked in SOC 21, 26% in SOC 11 and 16% in SOC 34. In all probability the reason for the excessive number of SOC 21 professionals was related to the great number of companies included from SIC 6201.

Considering the higher than UK average score for SOC 11, owing to the small company size (number of employees) it is feasible that the head of a small animation company would state their occupation as 'Managing Director', even though they might spend 80% of their time animating and 20% of their time on management. This is due to SOC classifications operate in a hierarchical system, and in the case above the person would be classified in a managerial SOC code, rather than a creative practitioner code.

The analysis may show that in the East of England 512 of the people employed in the 'footprint' are in SOC 11 Corporate Managers and 316 are employed in SOC 34 Culture, media and sports occupations. This does not necessarily mean that the people employed in Corporate Manager occupations do not also contribute to production.

The four digit SOC code work demonstrated how much detail can be sought in terms of occupational roles in relation to the selected segments at both UK and regional level. As with the two-digit SOC review, UK wide SOC employment data from the 2009 APS was sought in relation to the pinpointed SICs derived from the company search. This time the aim of the process was to build an understanding of the employment split, pinpointing those potentially working as animators or in related occupations, and those who weren't from the overall employment totals. In terms of findings for the UK, SOC 2132 Software professionals remained the most popular area of employment with 8,134 (23%) of individuals working in that area, followed by SOC 3416 Arts officers, producers and directors- 1,934 (5%) and SOC 3421 Graphic Designers- 1,683 (5%).

Again Software professionals were overwhelmingly the greatest area of employment,

skewed by the original use of SIC 6201 and the high levels found at the two-digit stage of review. However, the breakdown did give a far better understanding of the dispersal of SOC class 34 Culture, Media and Sports occupations, unpredictably putting SOC 3411 Artists fourth with 488 (1%), although this still did not account for a further 5,252 employees contained within SOC 34.

Considering the split, the selected SOC occupations only covered 35% of employment with 65% of the overall total not accounted for in the selection. This is an exciting discovery, speculatively demonstrating the above hypothesis that employees could be contributing to several areas of production and therefore classifying themselves elsewhere within the hierarchy of the SOC index. Given the previous volume of corporate managers (SOC11), there is strong suggestion that this is the case.

Without having data for the full range of four-digit SOC codes that make up the footprint, further analysis cannot be made. Considering the focus of the study, understanding the amount of animators working in the animation and other related segments (Computer Games, VFX and Interactive Media), it can be ascertained that general employment splits were as follows:

5.59: TCR Segment Employment splits (2009)

Sector	UK Employment Split		
	Selected SOCs	SOCs listed	not listed
Animation	24%	76%	
Computer Games	41%	59%	
Interactive Media	41%	59%	
VFX	21%	79%	
Overall Footprint	35%	65%	

5.59: TCR Segment Employment splits (2009) Source APS and TCR

As predicted the two segments that relied only on SIC 6201 company classifications have a higher split due to the volume of SOC 2132 workers included. For Animation and VFX we see the proportion split almost halved, when the identified four-digit SOC levels are compared we find the following:

5.60: TCR UK Employment Totals 2009

4 digit soc description	4 digit soc description	Animation	Computer Games	Interactive Media	VFX	Total
5499	Hand craft occupations n.e.c.	11	0	0	61	73
3422	Product, clothing and related designers	30	6	52	61	149
3421	Graphic designers	44	172	1,460	6	1,683
3416	Arts officers, producers and directors	171	0	0	1,763	1,934
3411	Artists	61	20	168	239	488
3122	Draughtspersons	1	2	20	0	24
2132	Software professionals	18	853	7,228	53	8,154
Sub-total people employed in SOCs above		337	1,054	8,928	2,183	12,505
Sub-total people employed in other SOCs not listed above in SIC		1,078	1,491	12,632	8,327	23,525
Total employment in all SOCs in the SIC		1,415	2,545	21,560	10,510	36,030

Please note the final total figures have been rounded to the nearest one.

5.60: TCR UK Employment Totals 2009 Source APS and TCR

Beyond the selected SOC codes where it was thought animation related occupations may be found, a sub group of codes were nominated that bore particular relevance to animation job roles. These were SOC 5499, 3416 and 3411. In considering the SOC classification where animators are most likely to be found; SOC 3411 Artists, it can be seen that this occupation has a consistent but low level presence within all four segments, the highest occurrence being 4% (61 employees) within the segment of animation. SOC 3416 Arts officers, producers and directors (where the job role of animation producer would be included) had a very strong presence within Animation with 12% (171) employees working in this role. Within the VFX segment 17% (1763) were found to be working in this area, but it is likely that those covered by this code would be working in other related and named job roles under this classification, not necessarily animation specific.

Finally, SOC 5499 hand craft occupations n.e.c, included the job role of model maker for animation. This equalled less than 1% of the overall total of employees found in each of the animation and VFX segments, but did include a significant number in relation to the identified SOCs. Concerning animation, 11 of the 337 employees were found to be working

in this area and for VFX, 61 of 2,183. The reality of all these employees being model makers for animation purposes was more likely to be the case within the segment of animation rather than VFX.

4 digit soc description	4 digit soc description	Animation	Computer Games	Interactive Media	VFX	Total
5499	Hand craft occupations n.e.c.	0	0	0	1	2
3422	Product, clothing and related designers	1	0	4	1	6
3421	Graphic designers	1	4	111	0	116
3416	Arts officers, producers and directors	5	0	0	40	45
3411	Artists	2	0	13	5	20
3122	Draughtspersons	0	0	2	0	2
2132	Software professionals	1	20	550	1	572
Sub-total people employed in SOCs above		10	25	679	50	763
Sub-total people employed in other SOCs not listed above in SIC		30	35	961	190	1,217
Total employment in all SOCs in the SIC		40	60	1,640	240	1,980

Please note the final total figures have been rounded to the nearest one.

5.61: East of England Employment Totals 2009 Source APS and TCR

This breakdown shows how figures for regional segment employment naturally echo the UK picture. Significant peaks can be seen in relation to the employment levels within the interactive media segment in SOC 2132 Software professionals-550 (34%) and SOC 3421 Graphic Designers- 111 (7%).

Both job roles would be expected within this segment. Notable employment is further found within SOC 3416 Arts officers, producers and directors in the VFX segment- 40 (16%) and predictably SOC 2132 Software professionals-20 (33%) within the Computer Games segment. The animation segment is the lowest overall employer with no significant employment peaks.

With reference to the methodology for this stage of the project, there are some drawbacks with this level of review. The project principally relies on the accuracy of the employment

statistics achieved through the identification of firms, and subsequent employment figures for each of these companies during the first stage of the applied research; essentially making the assumption that these figures are correct. When considering two-digit SOC employment at UK level, it can be assumed (based on TCR comparison to BIS SME statistics for full company employment data) that these have a strong accuracy.

As the employment data decreases, this level of accuracy will also drop because of the sample size employed by the APS (required to identify the SOC classifications). When disaggregated out to the level of detail used in this study its level of accuracy decreases. Therefore information on general employment data for each sector will be far more reliable than for specific 4-digit SOCs at segment and regional level.

A second methodological issue pertains to the regional data where UK percentages were applied to regional employment. Ideally regional variations would have been sought, but this would mean attaining and applying regional data for the selected SOCs; for example 'x' many of the total employees in SIC 3240 are corporate managers (SOC11) building a specific SIC/SOC matrix to apply to each region.

This regional percentage could then be applied to the total employment within that SIC for the region. Theoretically this would be an interesting approach to test and may be explored (depending on the accuracy of available sample sizes) within future applications of this work.

Triangulation of Creative Skillset UK Data for comparison with TCR data

Triangulation of the Creative Skillset data using the applied *Creative Trident* Methodology provides a unique way of examining the Creative Skillset 2009 census data and contextualizing it in terms of the following:

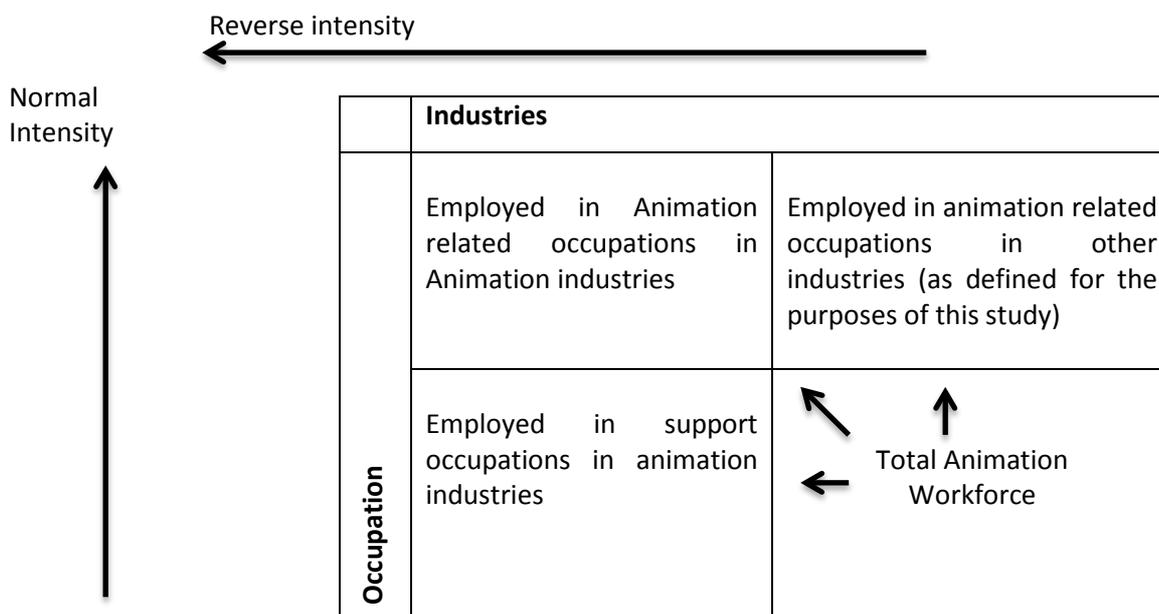
- Animators working in the Creative Media Industries
- Occupation split in Animation sector (animators vs non animators)

Changes to the way the UK creative industries are classified and measured (Creative Skillset et al 2013, Bakshi, Freeman and Higgs Jan 2013, DCMS April 2013, DCMS Jan 2014, DCMS

Jan 2015) have embraced the notion of understanding both the creative industries and creative economy. The idea of “creative intensity” (the proportion of people doing creative jobs within each industry) (Freeman, p7, 2004, DCMS, p 4, April 2013) is a more accurate way of identifying creative activity, and new approaches are used to analyse the contribution of creative industries to the UK economy.

This is an exciting development and echoes the original proposition of this thesis to identify the contribution of the animation sector by understanding where the activity of animation actually takes place i.e. identifying those that are employed as animators within their job role. In relation to this study and the available data, this supposition can only be reviewed concerning the creative media industries through the Creative Skillset data and selected related segments for the TCR data, and not at this stage for the whole UK economy.

As characteristic of creative industries, the presupposition is that the majority of this activity will take place within the nominated sectors. This notion is termed ‘occupational intensity’ (Freeman, 2007) or ‘reverse intensity’ (Bakhshi et al, p.38, 2013)



5.62: Adapted from the original *Creative Trident* (Higgs et al, 2008)

The diagram above demonstrates how these theories relate to the *Creative Trident* Model applied to the original intentions of this research.

This supposition is confirmed through test work carried out within the *Dynamic Mapping of the UK’s Creative Industries*:

The result is a strong confirmation of the general thesis that these occupations act as a specialist resource for the creative industries. The average across creative occupations, at 41 per cent, confirms that a high proportion of creatives work in the creative industries.
(Bakhshi et al,p.39, 2013)

Initial findings from review of the 2009 Creative Skillset data using the above methodology demonstrated that in terms of the entire creative media industry covered by this sector skills agency, the majority of animators were not found to be working in the animation sector. Figures showed that 18% of all animators worked in the animation sector leaving 82% working elsewhere in the creative media industries.

When considering the ‘normal intensity’ within the sector, 35% of all those working in the animation sector were actually animators. The former provided an interesting question as to where the remaining 82% of animators were found to be working. In terms of replication, sectors of computer games, interactive media and VFX were examined, with the aim of discovering where the majority of animators could be working. Additionally the ‘normal intensity’ of animators within each of those sectors was measured. A summary of these findings can be seen below:

Sector	Reverse Intensity	Normal Intensity	% of UK total employees working as animators in selected sector
Animation	18%	35%	1%
Computer Games	5%	6%	0.2%
Interactive Media	7%	2%	0.3%
VFX	53%	62%	3%
Total	83%	N/A	5%

Please note these figures are rounded to the nearest ten

5.63: Creative Skillset Summary of triangulated UK findings for selected sectors 2009

Within the sector of computer games, 5% of animators were found to be working in this segment, whilst 6% of those employed in the computer games sector were animators. For Interactive Media 7% of animators were employed in this sector but only 25 of the total employees were animators.

Finally 53% of animators were found to be working in VFX with 62% of the sector workforce as actual animators. This was a surprising finding considering the majority of animators (53%) were actually working in the VFX sector rather than the animation sector, and that the majority of the VFX workforce (62%) were animators. With regard to the size of the UK

Creative Media workforce, the total number of animators working in all sectors accounted for 5% of all those employed in the UK.

In reviewing the selected sectors above, the majority of employment was established (83%) leaving 17% accounted for in other sectors not covered by this study. Within this review all animators roles (as defined by Creative Skillset) have been included. An interesting aside for future review would be to explore the proportionate break-down of each role eg Animator-3D Computer Generated, in relation to sector, in order to better understand the intensities of job role to sub-sector.

In allowing for the 17% shortfall, a second tranche of calculations were carried out to ensure comparison was as accurate as possible with the UK TCR data findings. Employment totals for each of the Creative Skillset sectors were collated and the intensities recalculated:

Sector	Reverse Intensity	Normal Intensity	% of UK total sector employees working as animators in selected sector
Animation	22%	35%	3%
Computer Games	6%	6%	1%
Interactive Media	8%	2%	1%
VFX	64%	62%	8%
Total	100%	N/A	13%

5.64: Creative Skillset Summary of triangulated UK findings for selected sectors only 2009

All reverse intensities were naturally higher because of the restricted number of employees examined in this second round of calculations. Normal intensity remained the same as the figures were unchanged from those previously assessed. The total amount of animators employed within the entire employment data for these sectors rose to 13% of the overall total, demonstrating there is a higher frequency of animators working in these sectors than across all creative media industries.

In reviewing the new ‘reverse intensities’ for these sectors, there was little change for computer games and interactive media (+1%) whereas the animation segment moved from 18% to 22% (+4%) and with VFX a 9% increase from 53% to 64%. This finding further highlighted the potential concentration of animation employment in these sub-sectors.

Triangulation of TCR UK data

In order to ascertain if there were any comparisons between the TCR and Creative Skillset census data, the TCR data was triangulated in the same way as the Creative Skillset data. Because of the way the occupations within the animation sector had been identified and subsequently grouped, the calculations for this were slightly more complex, albeit arguably richer as a result.

Sector	Reverse Intensity			Normal Intensity			% of total workers outside of selected SOC area	% of UK total selected sector employees working within sector
	SOC 3411	With All Related SOCs	With Closely Related SOCs	SOC 3411	With All Related SOCs	With Closely Related SOCs		
Animation	13%	10%	3%	4%	17%	24%	65%	4%
Computer Games	4%	1%	8%	1%	1%	42%	66%	7%
Interactive Media	34%	7%	71%	1%	1%	41%	75%	60%
VFX	49%	83%	17%	2%	19%	21%	60%	30%
Total	100%	101%	99%	N/A			N/A	100%

Please note these figures are rounded to the nearest ten

5.65: TCR Summary of triangulated UK findings for selected sectors 2009

Reviewing the normal intensity, the trend was that as the occupations became more diluted the intensity increased. This expansion is to be expected, as the normal intensity will always inflate as more related occupations are added to the criteria for classification.

The reverse intensity was far more unpredictable; for the animation segment it steadily decreased, demonstrating that as more related occupations were added the intensity of employment for potential animation and related roles dropped.

For computer games, the reverse intensity dropped (to 1%) but then rose again to 8% as more related occupations were added. In the case of this segment this was possibly due to the selection of related job activities that fell into the third grouping of SOC codes, including SOC 2132 Software professionals, housing the job roles Developer (Software), Producer (Web) and Designer (Software) and SOC 3421 Graphic designers including designer (Multimedia, web). Similarly, interactive media demonstrated the same trends undoubtedly due to the occupational groupings.

Conversely the result for VFX was less predictable. Allowing only for SOC 3411, the reverse intensity was found to be at 49%, rising to 83% with the inclusion of SOC 5499 and 3416. On closer inspection of the figures, SOC 3416 Arts officers, producers and directors, served to enhance the intensity by 81%. Then with the inclusion of all selected SOCs the reverse intensity dropped to its lowest figure of 17%. This was attributed to the lack of employment in this segment for the additional SOCs included.

The reverse intensity shows that the hypothesis is more clearly demonstrated through the most concentrated segment animation, determining that the intensity level of job roles vary depending on the propensity of skill, or combination of skills, utilized in that particular segment.

In evaluation direct comparison of TCR data to the Creative Skillset findings is not wholly possible given the job role classifications. For the purposes of this analysis SOC 3411 would generally be considered the most reliable indicator for the occupation of animator. As established, its reliability diminishes as we move further away from the subsector (as the SOC code includes other occupational roles).

The inclusion of more diverse but related occupational roles allows for a richer review of related employment at this sub-sectoral level. In relation to the pattern of the findings there is some correlation between Creative Skillset and the TCR data (Appendix 5.34_Creative Skillset_TCR_Triangulation_comparison).

Broadly speaking and only considering SOC 3411 and closely related SOCs it can be seen that the pattern of reverse intensity for all four subsectors is the same. The highest reverse intensity of workers was in the VFX sector for both the Creative Skillset and TCR data, followed by animation and then interactive media. At the lower end computer games had the smallest reverse intensity in these occupational areas.

This demonstrates there is some correlation of the findings, suggesting that whilst the percentage weightings are different due to the classification of activity, there is some parallel in the distribution of these associated job roles.

In review of normal intensity there was some correspondence in ranking to the Creative Skillset findings when considering the related SOC classification group. VFX had the highest intensity of animation workers, followed by animation. Interactive media and computer games both demonstrated very low levels of the selected SIC intensities. Disappointingly the percentage weightings varied wildly within the two studies, and any speculation would be based on restricted evidence.

Given the probability of identifying exact roles in the selected SOC range, it is impossible to compare Creative Skillset occupational figures within all selected sectors. It is most likely that SOC 3411 and related codes will provide a reasonably accurate estimation of animators working and associated occupations in the animation sector. This is because workers in the animation sector actually classified under these SOC codes are less likely to be working in any of the other occupations contained within these codes.

Moving through the related segments this probability diminishes. To eliminate supposition the occupations within the remaining three segments should only be judged as broad SOC codes.

Triangulation of Regional Creative Skillset and TCR data

From the available Creative Skillset data we already know that an estimated 150 animators worked in 2009 in the East of England, and that this is 2% of the UK total (8150). Considering the total number of regional employees working in all the selected sectors, it can be seen that the region accounts for 4% (1820) of UK employment for these sector groups. Therefore in terms of animators working in the East of England region the outcomes will be small at this level of aggregation.

Reviewing the data collated so far, it can also be seen that the only significant employer in UK terms, accounting for 18% of employment in this regional sector, was computer games. The other substantial UK employer of animators was the VFX sector and from the data available there was no evidence of any employment in this sector for the region:

Sector	UK Total Animators working in this sector	Percentage of UK Total animators	Total UK Employment in sector	UK Percentage of total workers in sector who are animators	Total regional employment in sector	Percentage of UK sector employment total
Animation	1,500	18%	4,300	35%	1-24	0.5%
Computer Games	400	5%	7,050	6%	1,300	18%
Interactive Media	550	7%	33,700	2%	500	1%
VFX	4,300	53%	6,900	62%	0	0%
Total	6,750	83%	51,950	N/A	1,820	N/A

5.66: Creative Skillset 2009 Census Data

As I was using UK percentages applied to estimate the East of England totals for the Creative Skillset data and the TCR data, percentage comparison would be the same at regional level. This could only be achieved for the TCR data if more robust data with larger samples sizes were available from the APS for regional breakdown. Without full employment data for each Creative Skillset sector for the East of England, percentage weightings created in relation to all Creative Skillset sectors had to be applied.

Estimations of employment totals for animators were reached based on the application of these UK percentages to the known regional data. Testing the data in this way gave a broad range of estimates for animators working within each subsector.

Based on the reverse intensities, it could be seen that at the most 45 of the total 150 animators working in the East of England were working within the four selected sectors. Whereas in contrast and based on the normal intensities for each sector; out of the 1,820 total workers, 96 animators could potentially be working in these sectors in the region:

Sector	Estimated Number of Animators in regional sector	Total workers in regional sector	Estimated number of animators working in the rest of creative media industries in this region
Animation	A value between 7-27	A value between 1 and 24	123
Computer Games	A value between 78-8	1,300	142
Interactive Media	A value between 11-10	500	140
VFX	0	0	150
Totals	A value between 96-45	1,820	55- 105

5.67: UK Creative Skillset percentages applied to Creative Skillset regional data for the purposes of gap filling at East of England level- Summary of triangulated findings 2009

This method will only ever give an indicative view (range) of the potential number of animators working in specific subsectors in the region. In this case it is assumed that the applied UK percentages are correct at regional level, however this may not necessarily be

the case. Each region will have its own specific company formations and the makeup of those employees will be unique to that area.

The reverse intensity percentage for animators working in the selected subsectors could be higher or lower than the national average as could the percentage of animators (normal intensity) working within the workforce for each selected sector.

The ranges give some indication of the size of the selected sectors in the region in comparison to Creative Skillset UK data and thus the conceivable level of employment for animators in this region based on their figures for this period.

5.68: Summary of triangulated TCR Regional findings for selected sectors

Sector	Reverse Intensity			Normal Intensity (As UK)			% of total workers outside of selected SOC area	% of EE total selected sector employees working within sector
	SOC 3411	With Closely Related SOCs	With All Related SOCs	SOC 3411	With Closely Related SOCs	With All Related SOCs		
Animation	10%	11%	1%	4%	17%	24%	98%	2%
Computer Games	0%	0%	3%	1%	1%	41%	97%	3%
Interactive Media	65%	20%	89%	1%	1%	41%	21%	83%
VFX	25%	70%	7%	1%	1%	21%	84%	12%
Total	100%	101%	100%	N/A			N/A	100%

Please note these figures are rounded to the nearest one

5.68: Summary of triangulated TCR Regional findings for selected sectors

The reverse intensity for the TCR data is different from the UK totals (appendix 5.35_TCR_UK_EE_Triangulation). This is because the figures are based on total numbers of people employed in each of the 4 digit SOC codes within the regions in all the footprint segments, e.g. in the East of England 20 people were found to be working in SOC 3411 whereas only 2 were found to be working in SOC 3411 in the animation segment, meaning that 10% of all those working in SOC 3411 were working in the animation segment.

For this region the animation segment increases slightly when closely related SOCs are added, and then drops once all related SOCs are considered. This is slightly different to the UK trend where there was a clear decrease in intensity as more SOCs were added. This could be because the Eastern region is characterized by small micro companies, therefore employees are classifying themselves elsewhere within the selected SOC codes, hence the slight increase with closely related codes once SOC 3414 (Arts officers, producers and directors) are included.

The intensity drops to 1% when considering all related SOC, as with the rest of the UK, because of the high volume of software professionals included in this category and working in other segments. For computer games the reverse intensity only moves above 0% when all closely related SOC are examined, demonstrating a low volume of the selected SOC working in the segment.

Interactive media registers as employing the general majority of selected occupations with 65% of SOC 3411 and a massive 89% of all selected SOC working in this segment. Within VFX, its highest reverse intensity is found within closely related SOC at 70%. Both sectors echo the graduation of percentages within the UK review although percentage values are significantly higher or lower in all cases. Tentatively, this demonstrates the majority of artists and software professionals were working in the Interactive media segment, whereas the majority of arts officers, producers and directors were working in the VFX sector in the Eastern region.

Whilst studying the volume of workers included in the selected SOC within each regional segment, we see a general trend for more workers being classified outside of the selected SOC area than the TCR UK figures (Table 5.68). The only exception is interactive media where 83% of the segment employees work within the selected SOC codes as opposed to 60% at UK level.

This verifies the probability that many workers are involved in varied job roles because of the size of the companies they are employed within. This theory is strengthened by the findings in chapter five (p.253) that the interactive media segment in the East of England has the highest average employment of six. Within interactive media, this slightly increased volume could allow for more defined roles within companies, pointing to a higher frequency of selected SOC contained within this segment.

Sector	UK Total Animation-related occupations working in this sector			Percentage of UK Total in selected SOC group (%)			Total UK Employment in sector	UK Percentage of total workers in sector who are working in all related SOCs	Total regional employment in sector	Percentage of UK sector employment total
Animation	61	24 3	337	13	10	3	1,415	24%	40	3%
Computer Games	20	20	1054	4	1	8	2,545	41%	60	1%
Interactive Media	168	16 8	8,928	34	7	7 1	21,560	41%	1,640	5%
VFX	239	20 63	2,183	49	83	1 7	10,510	21%	240	3%
Total	488	2,4 94	12,50 2	10 0	10 1	9 9	36,030	35%	1,980	4%

Please note these figures are rounded to the nearest one

5.69: Comparison of total Employment Figures for the UK and East of England

Total employment figures for the UK and the East of England can be seen comparatively in the table above. In terms of total employment in the sector the region accounts for a minor proportion of the overall TCR UK employment in the selected segments (4%).

When comparing the East of England employment totals to the UK, it can be seen that the greatest volume of employment is found within the interactive media segment, paralleling the UK findings. Based on normal intensities, the table below provides an overview of the employment numbers for each SOC selection and can be compared to the full UK figures above:

Sector	Number of Animators in regional sector			Total workers in regional sector	Number of animators working in the rest of creative media industries in this region		
	SOC 3411	With Closely Related SOCs	With All Related SOCs		SOC 3411	With Closely Related SOCs	With All Related SOCs
Animation	2	7	10 (25%)	40	18	59	764 (75%)
Computer Games	0	0	25 (41%)	60	20	66	739 (59%)
Interactive Media	13	13	679 (41%)	1640	7	53	85 (59%)
VFX	5	46	50 (21%)	240	15	20	714 (79%)
Total	20	66	764	1980	N/A	N/A	N/A

5.70: TCR Balance of Employees at East of England Level

The table above shows the balance of employees within identified SOCs at East of England level, demonstrating that 764 of 1,980 employees work in the selected SOCs. In comparison

to the Creative Skillset data on animators for the East of England (Table 5.67), the closest estimation from the TCR data would be a total of 66; allowing for those animators who have varied roles and are therefore classified under closely related SOCs. Considering the Creative Skillset estimated total covers all subsectors within the East, and the previous Creative Skillset triangulated findings have produced a value between 96 and 45 for these sectors alone, there is some correlation.

Comparative Mapping- East of England

The concluding stage of review for the data was to conduct one final test of validity. Comparison with Creative Skillset census data had provided an extremely valuable benchmark, enabling the study to further investigate the limitation of both sets of data when applied to the *Creative Trident* Methodology at a regional level.

As a control, a census was made of the sector to create a more accurate snapshot of activity. As the probability of the accuracy of TCR data was strongest for the animation sector, the survey was only conducted for that segment within the East of England.

This was considered likely to extract the most accurate information from companies in the region, although difficult to replicate across the UK. The selection of companies, as with the Creative Skillset census questionnaire, was a manual process, and unlike the search criteria used within the TCR company investigation, it was based on the author's experiential knowledge of the regional industry.

The company search was thorough, using as many known sources as possible in order to create a comprehensive database. This database was constructed containing as much data on each company as could be found through searches. Every company was called and a short series of questions were asked. If no response was received on the first telephone call a follow-up call was made. This process was extremely time consuming, with some telephone interviews taking up to half an hour. In terms of a sample 16 companies (28%) were interviewed out of 57 identified, giving a healthy response rate to base the analysis on.

In comparison with the TCR animation company identification for the East of England, the mapped data demonstrates strong similarities in location, with clear concentrations around Hertfordshire, Essex and Thurrock. These intensities were to be expected given the proximity to the capital. Other clusters are apparent around principle hubs within the

county; Cambridge, Norwich and Kings Lynn, as well as a concentration of companies down the A12 corridor.

The TCR data identified 25 animation companies operating in the East of England in contrast to the 57 identified by the control and 45 on the Creative Skillset database (Muir, K, 17/08/2011). Incredibly, there are no duplications between the companies identified by TCR and the control survey. This is extremely disappointing in terms of perceived accuracy, demonstrating the shortfalls in the TCR database.

Companies with animation in their title may not have been picked up as they did not have an appointed SIC code or the SIC code was not within the initial cut of data. As found with the examination of the TCR company outputs, many companies located within the control selection did not have key words in the title, such as Eggbox studios (#25) and Hedley Griffin Films (#21) and could only be identified if they had the associated correct 'Line Of Business'.

Equally, the TCR data pinpointed companies not identified including KayKay Animation Ltd (#14), Target Animations (#22), Pencil and Pepper Animations (#23), LMJ Animations Ltd (#5), Phoenix Animation Ltd (#2), further underlining the limits of manual selection used in the control. Within the control, companies identified appear to be more comprehensive within the local search area of the author. The author's experiential understanding of the immediate region was more comprehensive than her knowledge of the counties closer to London, meaning there was less awareness of companies that may not have been picked up by the TCR data in that region.

Given the lack of correlation in the identified TCR and control companies, the process of reflection on comparative employment levels is ineffectual. Summative comparative findings, including known Creative Skillset data, establish that both the TCR and Creative Skillset estimations for total employment within the Eastern animation subsector are much lower, Creative Skillset 1-24 and TCR 40 than the control weighted estimation of 228. This process has demonstrated the need to ensure the accuracy of the company data is improved, as all employment data is based on this precision.

Summary

Within this chapter I have used the first section to present a detailed exploration of the findings and outcomes from the applied work with TBR using the TCR database. The Creative Trident Methodology has been applied to the Creative Skillset and TCR data findings at UK and regional level. Where data is available, company postcode data has been mapped to allow focus on geographic clustering and distribution.

The outcomes from the control census have been analysed and consideration given to the size of the sector and balance of workforce occupations using the case study region of the East of England, considering the lone sector of animation.

The second section has provided a detailed evaluation of the findings, appraising the outcomes in the context of the research experience based on data from the period examined. Methodological issues have been defined and limitations acknowledged in the development of limited factors towards the conclusion of this research.

These limiting factors have been ranked in order of impact on the process of this study. In the operation of examining all of the outcomes of my applied research methodology I have identified the following conditions that have impinged on the quality of my conclusions:

1. Using only SIC 6201 to explore computer games and interactive media company counts has limited the breadth of companies represented in the segment
2. The lowest extent of available and accurate employment data was at four-digit SIC code level
3. Applying UK percentages to regional employment has meant that there is no opportunity to explore regional variation in percentages at this level.
4. The often-comprehensive job title descriptors are absorbed by general four-digit SOC codes. This significantly reduces the ability to pinpoint specific job roles such as 'animator'.

5. Due to the hierarchical nature of SOC codes and the tendency for companies within the footprint of this study to employ a small number of employees, those who engage in several job role activities cannot be identified.

6. Data for the animation segment is likely to have a stronger accuracy. This is due to the strength of the classification and identification process. In terms of occupation, the selected four-digit SOC code role descriptor is more likely to relate to an animation job role in the animation segment.

Chapter 6

Conclusions

Introduction

Within this chapter recommendations are made for actions in relation to methodological processes, data collection and animation sectorial issues. A final summary provides a consolidation of findings and suggestions for future research.

Recommendations

This research has focused on understanding the animation sector at a regional level. Through the process of exploring this issue, a methodology was developed that has the potential to be applied to any subsector within the creative industries. This methodology was developed in such a way that it preceded collective mainstream methods at the time of its instigation in 2009. It is encouraging to observe that within the interim period that the DCMS have developed their own method based around similar research design and theories in order to gain a more holistic view going beyond the creative industries to the creative economy (through the use of the *Creative Trident*). This approach, devised in 2013 and applied from January 2014 within the Creative Industries Economic Estimates, takes into account two new relevant factors:

- 1) Creative Occupations within and outside creative industries
- 2) Creative Intensities defining any sector as creative if it employs a significant (defined) number of creative people

This method is driven mainly by a data informed approach, and through consultation (NESTA and Creative Skillset Reports) has redefined the DCMS definition of the creative industries and subsequent coverage of their estimates. The process principally reverses the old DCMS method of defining creative industries through SIC codes and instead identifies SOC creative occupations, then measures the proportion of people doing creative jobs within each industry, to suggest which industries should be included. Those above 30% threshold are candidates for inclusion within the CI classification. These selected SICs have then been categorised into broad DCMS groupings to create an amended definition of the Creative Economy.

This methodologically comparable style is leaner and more focused considering the creative sector in the UK, but is still highly limited in terms of sector aggregation. Disappointingly, the classifications are still far too broad for the SSC despite Creative Skillset contributing greatly to the consultation through the collaborative project 'Classifying and Measuring the Creative Industries' (February 2013). While the method of locating and measuring the creative economy is still based on current classification systems only, identification of activity at a more granular level for many sub-sectors* cannot be sought. Although it is understood, disaggregation cannot be achieved. This revision of the definitions may have been a good opportunity to consider sector groupings further in relation to SSC coverage and responsibilities. This would have allowed for some parity of measurement and consistency of classification of subsectors, if only at broad sectorial level i.e. creative media. Discussion with Creative Skillset has revealed that they will be working to update the SIC definitions in 2017 to better reflect the creative industries with a particular focus on improvements to VFX and Computer Games (Dan Wilks, 09/02/15). This is a welcome development which, it is hoped, will create a greatly improved situation when it comes to comparative measurement.

NOTE: "We've found that SIC does allow further sector breakdown for some sectors such as publishing, advertising and photo imaging. " (Dan Wilks, 21/01/15)

It is still impractical to try to map Creative Skillset coverage to the DCMS Creative Industries Groups defined by SIC codes. Following the 2017 SIC revision, it is assumed that DCMS will either remap the SIC definitions to the Creative Industries Groups or possibly revise the definitions again. Creative Skillset should use this opportunity to create a more coherent parallel in standard classifications and their own definitional boundaries. A process of this nature between DCMS and the SSC would ensure that the creative industries are essentially better recognised and defined.

In revising the DCMS process for measuring the Creative Industries Economic Estimates, NESTA propose that creative roles are characterised by a uniqueness in their approach to outputs:

...a role within the creative process that brings cognitive skills to bear to bring about differentiation to yield either novel, or significantly enhanced products whose final form is not fully specified in advance. (NESTA, 2013, p. 24)

This acknowledgment of creative occupations as the driving force for identification of activity is an exciting development and one that echoes the philosophy of this study. For the animation sector, ultimately activities can only be measured where animation takes place i.e. the value of the sector can only truly be measured by counting the number of animators. Ideally this could be achieved through the identification of the job role via current standard datasets (SOC coding). The experiential evidence of this research demonstrates that applying the new DCMS process could not be achieved at this level because of the way the SOC codes work. Even at 4 digit SOC level the generally comprehensive job titles (See Appendix 5.29 for authors proposed SOC amendments to ONS) do not have discrete codings. This means that several job roles will be assigned to the same 4 digit code. Therefore within this research, it has been necessary to make qualitative assumptions based on the authors' knowledge and existing industry data to identify the main subsectors for where this activity could principally take place. Discussed in detail within the summary of the findings earlier in this chapter, the methodology works well from the perspective of the animation industry sector; it can be assumed that the majority of workers recognised within this industry subsector will be involved in an identified job role rather than any of the others included within this classification. However, as we move away from this even into the key related subsectors of computer games, VFX and interactive media the accuracy of the employment data being related to a specific job role within the SOC code becomes diluted and therefore less reliable. At the time of writing (Dec 2015), there is no process for recognising the role of animator as an individual occupation using only SOC codings. Nevertheless, the approach taken by this study does demonstrate that occupational levels and groups can be measured in some detail at sub-sectoral level establishing the first steps toward greater comparability across Government datasets.

A major issue with the collation of this research has been the lack of detail within official and comparable Government data. Bakhshi notes the *"well known limitations"* with using official data (SIC and SOC codes) within his web article on measuring the creative economy (October 2015); *"the SIC codes are inadequate in key areas meaning that even if a business is captured in the data, they may not be classified in a way that allows their contribution to be accurately identified"* (Bakhshi, Friday 16th October 2015), meaning no matter how strong the methodology developed or applied, if the original data is limited the outcomes will be compromised.

Recommendation 1: Comparable official data measurements need to be improved in order to accurately apply any methodology and identify contribution to the economy

There is a gap between the fact-finders' and practitioners' knowledge in understanding the creative economy. It is clear that a coordinated approach to the definition, classification and measurement of subsectors must be taken. Interpretation should be considered by a variety of stakeholders including industry at an earlier stage, to ensure accuracy of view. Until better employment data is available activities can only be measured by first identifying the industry within which the activity is embedded. Given the existing situation no matter how strong the method is for collecting data on the creative economy, if the original data or classifications are limited then the findings will always be flawed.

Recommendation 2: Improved correlation for specific mapping of job roles

Corrective action– the application of a recommendation to address the known issues with data collection

It is recommended that SOC job role descriptors and subsequent 4 digit codes should be mapped to Creative Skillset census job roles in order to identify gaps and duplications.

Preventative action- the application of an alternative approach to prevent the re-occurrence of the same issues with data accuracy present in the current measurement programme

SOC job role descriptors should be grouped in families more related to current SSC coverage in order to provide better parity in measurement and identification.

Applying the Creative Skillset census data to the *Creative Trident* Methodology has offered an alternative way of looking at occupational sectors, and has provided an improved method of examining the landscape of animation activity. From the perspective of UK data, the analysis of intensities provides a more cohesive method of understanding the relationship between subsectors and occupational roles, highlighting where the majority of activity takes place. The work conducted in this study has clearly identified that from the Creative Skillset data more animators are found to be in VFX than in the animation subsector. The work within this research has relied upon the accuracy of the raw Creative Skillset census data, however the precision of this data is dependent on the knowledge of the respondent. Experiential evidence from VFX industry colleagues has suggested that these findings (the volume of animators working in this sector) are far higher than they would expect from their workforce particularly in larger companies.

Recommendation 3: Creative Skillset to review the demographic of their employment census returns

Reconsidering the composition of the VFX sector occupational makeup, the classification 'animator- visual FX' has a very high level of response to employment within it. This may mean that those completing the census do not have a full understanding of the occupational and industrial functions within their organisation. Review of the following would ensure a better understanding of the potential idiosyncrasies affecting the census responses:

- Who fills the census out from each company- position? Do they understand the occupations?
- What sector is the company primarily based in? Are they really a VFX company, have they classified themselves correctly?
- What is the demographic for responses? Number of employees? Average company size?

The *Creative Trident* Methodology and the notion of creative intensity are extremely powerful models for review of census data, and will provide alternative approaches to reviewing the agglomeration of creative industries. Review of job roles in this manner would have significant effects on policy and the way sectors and subsectors are recognised.

The Creative Skillset industry sector coverage was used as the definitional parameter for this research. Unlike the DCMS Creative Industries Economic Estimates, it was accepted that these named sub-sectors (Animation, Computer Games, Interactive Media and VFX) were the most appropriate for the identification of animation-related activities within the UK economy. This provided a comparable dataset (Creative Skillset) and a framework for extracting and segmenting the data from the TCR database. It is widely agreed that the TCR data is the most appropriate and accurate dataset in its field:

I continue to use it as the most reliable data source I have come across that identifies live business numbers, including micros, especially ones which fall under the VAT threshold or ran as self-employed, both categories official datasets can struggle to reflect. The methodology employed by TBR also allows any gaps in data to be filled and give an overall picture of the sector. (Stephen Grey, Creative Skillset Research and Evaluation Associate and Freelance Research and Project Manager, 23/04/15)

The research methodology relied on the accuracy of the identified companies in the TCR data. For the purposes of this work it was not possible to analyse the entire economy in order to see where animators were working or to select groups based on occupational

volumes. It was therefore necessary to apply a rational approach to identifying key industries. This was carried out through extensive filtering and reverse checks of existing known companies, and has created a robust and replicable method of identifying and sorting companies. However, similar to the CIEE process for identifying creative occupations, the procedure has been informed by personal judgment based on collected information on the industries, and could not be purely data driven. The outcome provides a far more comprehensive selection of company data than the volume of returns that the Creative Skillset census analysis was based on. Unfortunately, this filtration system is not flawless and these entries are susceptible to inaccuracies, and this is particularly evident with the identification of VFX companies. For comparability, future iterations of this analysis could be stronger if access is granted to the Creative Skillset Creative Media company database. This would provide sectorial boundary guidelines to ensure parity of identification across all subsectors.

Recommendation 4: The application of *Creative Trident* Methodology using TCR data applied to the Creative Skillset company database

Experimental analysis should be carried out using the Creative Skillset company database entries applied to TCR. This process would provide a far more comprehensive view of the industries, how they are identified through SIC codings and key words. This process would also allow for comparison with existing census data on full sub-sectoral employment, and would provide a more reliable foundation to base work on granular regional analysis and SIC/ SOC matrices.

It is not proposed this method would replace the census methodology; it is indisputable that the Creative Skillset census is the best source of detailed information on the creative media industries and the consequent sub-sectors. Instead it would offer an enhanced contextual grounding, greater comparability with national datasets, new opportunities for mapping and more robust regional review.

The general level of Government data available at a regional level has vastly improved since 2009. Following the publication of the CIEE in January 2014 using the revised methodology and definitions, the DCMS published a study entitled *Creative Industries: Focus on Employment* (June 2014). For the first time, this paper provided geographic distribution by DCMS-defined creative occupation and industry sector at regional levels, using the *Creative Trident* Methodology. This is a welcome development and although still lacking in parity

with the SSC coverage, provides some enhanced understanding of activities using government data at this level.

Whilst much emphasis has been placed on the revision of SIC and SOC codes, I am under no illusion that improved mapping of these codes will ever allow for standard government data to be disaggregated at such a granular level. To date the only comparable subsector analysed by the DCMS to any degree is Computer Games. Within the DCMS CI estimates this sector has been reviewed separately due to its transcendence of traditional classifications, and unusually analysed partially at 5- digit SIC level. This data was produced in order to maintain continuity with previous releases, and used a mix 4 and 5-digit SIC codes to estimate only the industry employment level and GVA (DCMS, 2015, p.35). Consequently there will always be a need for the Creative Skillset census or data collection of this qualitative nature in order to augment official statistics. Better correlation will mean more opportunity to demonstrate relationships in data i.e. Creative Skillset may one day be able to utilise a distinct set of SIC and SOC codes related specifically to their SSC coverage.

The computer games sector has provided a useful parallel, where Government recognition of the industry has meant it has been singled out for analysis by varying organisations and Government bodies. The DCMS acknowledges that the estimates for the computer games sector can be 'misleading' (DCMS, 2015, p37) and does not take into account micro-businesses. This is due to the SIC structure (Dec 2015) and the methodology used to obtain employment estimates. Subsequently, in order to ensure future accuracy in classification, UKIE (The UK Interactive Entertainment Association) and the Computer Games industry have been working with DCMS and ONS. Furthermore NESTA and UKIE have embarked on their own independent research *Using Big Data to map the UK video games industry* (Sept 2014). This research is pioneering, moving away from SIC codes or 'known' games companies, creating a new list of UK games companies built on extracted information (where available) from Companies House. These companies were identified through creative outputs reviewed on the web and employment data sought from BRES (Business Register and Employment survey). Through combining government data, this new study does not completely dismiss the existing data collection frameworks, taking a reverse look at identified companies to see how they classified themselves within SIC (a similar process conducted by this research when identifying animation companies within the TCR). The findings overwhelmingly demonstrate the shortfalls in SIC classification, showing a majority of companies to either be classified in SIC codes outside of the recognised 'Computer Game'

classifications or simply unclassified. From the perspective of this study and further research, this is a real turning point. It moves to a form of new 'live' mapping and analysis from a situation of data collection lagging behind practice. Conversation with Creative Skillset has revealed they don't have any immediate plans to further develop new experimental approaches for sector/subsector analysis at this stage. Creative Skillset will be updating the census in summer 2015 and whilst this will be based on the previous methodology, they will be working with NESTA and other partners to improve it where possible.

Recommendation 5: APS/LFS data should be applied, giving a fuller picture of employment than ABI/BRES, which misses a significant proportion of Creative Industries employment

The NESTA big data methodology sources from the Annual Business Inquiry/Business Register Employment Survey (ABI/BRES) data. Consequently it misses a significant proportion of creative industries' employment where the person is self-employed. It is recommended that NESTA test the application of APS/LFS instead, giving a potentially increased picture of employment for employees and self-employed people. It would also allow for analysis of different occupations within industries (SOC by SIC). This data is commonly used by DCMS for CI estimates and applied within this study.

Recommendation 6: The creation of a transferable methodology with clear definitional boundaries

Building on this experimental methodology for analysis of the Computer Games sector (NESTA, UKIE, Sept 2014), it will be necessary to create clear definitions in order to identify companies and replicate the process. These definitions should be comparable and guidance applicable to any industry sought for analysis.

The rationale for the current focus on computer games and their contribution to the UK Economy is clear. This is a burgeoning sector which has previously been poorly defined through its representation in common Government datasets, straddling both the high-tech and creative economies and heralding a new era of analysis. It is clear from the varying datasets explored within this study that animation plays a significant role within this and other high growth industries for the UK. However, specific advocacy for this subsector seems to lack the weight and organization that other subsectors enjoy. The journey this project has taken has at times been a lonely one. With the abolition of the UK Film Council and the regional development agencies (RDAs) and the closure of the Regional Screen

Agency (Screen East) there have been limited organisations to turn to for sectorial support and advice. At a UK level, there are two notable organisations providing national advocacy for animation; Animate Projects and the Animation Alliance.

Animate Projects have continued to provide support for contemporary creative animation and its practitioners. Its most recent report (November 2015), published in November 2013, focuses on animation practitioners in order to inform the proposed creation of Animate's new professional development programme. The report was aimed at independent, creative animators and intended to provide evidence of the breadth of work that animators undertake across the creative industries, and the new ways in which animators collaborate and work outside traditional models. In comparison to this study, that survey took a more bespoke approach. The report's findings were based on a basic online survey methodology, through advertising the survey and collecting 324 responses from individual practitioners rather than companies. Despite the very different approach taken, some of the data reflects comparable findings. It highlights that 55% (p16/17) of respondents said that they worked in industries 'other than animation', further confirming the prevalence of this activity in other subsectors. Additional notable findings demonstrated that only 25% of the respondents were on long term freelance contracts and 47.5% were on short term contracts, meaning 27.5% were employed full time. This provides another dimension to the landscape of freelance employment, signifying the volatility of freelance work. These findings demonstrate a much higher proportion of animators working freelance than the most recent Creative Skillset census (2012) where 30% were found to be freelancers in the animation sector. This does not mean that either survey is inaccurate given that they are based on different sample sources (Accelerate- animators working anywhere and CSS-industry responses). It does emphasise the need for contextualization of data in order to ensure accurate measurement of the industry. The report makes some very good recommendations for sector support but disappointingly, there have been no wider developments and limited liaison with CSS (Gary Thomas, Associate Director, Animation Projects, 12/02/15). In conversation, Gary notes that funding is scarce with his organization being run by only two people, both of whom are part-time, therefore high profile activity just isn't feasible.

During the period of this research, The Animation Alliance UK have campaigned hard and have been instrumental in achieving the introduction of tax reliefs for the animation sector

(from April 2013). In its role as advocate for the animation industry its focus appears to be on targeted advice for the Treasury, ensuring fairer trading opportunities for UK animation producers. No further industry research has been conducted since the report; *Securing the future for UK Animation*, (Kenny and Broughton for Perspective Associates) published in September 2011. The report primarily focused on TV Animation, identifying the four main Creative Skillset animation occupational disciplines, basing many of its findings on the Creative Skillset *Animation Sector Profile* (2008) and the Creative Skillset *Labour Market Digest for Animation* (2009) along with Perspective Associates own gap-filling research. This is a seminal piece of work in contextualising the value of the UK animation sector and noting that although ‘relatively small (we believe it has revenues of around £300m)’ (p.7) supporting a range of other industries, describing it as ‘an important part of the creative industries and its impact and influence are widely felt’ (p.7). This validation of the animation sector to the Government clearly had an impact as the tax reliefs were achieved and are already having a dramatic effect on animation production for television (<http://www.theguardian.com/tv-and-radio/2014/apr/13/british-cartoon-industry-cbeebies-boom-tax-break>)

It is too early to seek formal data on the effect this improvement has had on the subsector, but anecdotal evidence from industry colleagues clearly demonstrates a dramatic resurgence in animated content for broadcast produced in the UK. Animation Alliance continue to lobby and update their website on developments in respect of Tax relief.

Recommendation 7: Better data would allow for a more targeted approach to funding and occupational development within the animation sector

In terms of occupational support for animators this falls solely to Creative Skillset. The Budget 2015 heralded an extension to the Skill investment fund meaning more support for animation training and development. The improved identification and representation of key occupations within subsectors through creative intensity measurement would assist in the application of targeted funding and reporting.

The success of the Animation Alliance in lobbying for tax relief further enhances the need for connected data collection, acknowledging the full breadth of the animation sub-sector and its impact within other industries. From examination of evidence it is clear that the landscape of the animation industry is a very different and a vastly more successful subsector than the one reviewed at the start of this research.

The experience of this research journey has demonstrated how policy is rationalised through data. From a regional perspective, after the closure of the Regional Screen Agency, Screen East, there has been little co-ordinated advocacy for the subsector, meaning activism is reliant on ad-hoc initiatives. With funding increasingly centralised, there has been a distinct move away from co-ordinated and specific regional support. On reflection, it has been impossible not to notice the rapid decline of so many key local support organisations (including the Film and Digital Media Exchange, Norwich International Animation Festival, Creative Norfolk, Animation East and the scaling back of regional presence by the three main broadcasters). This may be related to the rise of remote working practices which have meant that locality and regionality are no longer seen to be an issue. Ironically, in the absence of full sub-sectoral data and activism for the region it is impossible to identify if indeed it has any needs, or if the presence of these organisations is missed.

Recommendation 8: Improved data should be available at a comparable sub-sectoral level for all nations and regions

It is essential that improved data is available at a comparable sub-sectoral level for all nations and regions. The combination of identified industry clusters and better-informed employment data will demonstrate comparable linkages between sectors and subsectors, geographic clustering (for example the burgeoning acknowledgment of the relationship between creative and high tech economies) and the impact of regional creative industry agglomerations on the economic health of the area.

Summary

I have answered the research questions I initially proposed in Chapter One, through the subsequent chapters. Each chapter has provided a building block from first defining the subject of study, framework for development and ultimately design of a model to better represent animation activities at a local level. I have consistently contextualised my decision-making process relating the methodology to other counterparts. Within the final chapter I offer recommendations on how the value of the animation industry can be better understood therefore paving the way to enhance and inform support for the regional economy.

Through this research I have defined the contemporary animation industry as anyone employed within the occupation of animator potentially working in any sector. This main occupation and associated occupations have been described using standard government classifications in order to ensure the best breadth of comparable data could be used. Although the research has been limited to specific subsectors, this method has provided a strong test case for this applied process.

In terms of the developed methodology proposed by this research, comparability has been sought. Testing this approach and applying it to the case study has provided a number of recommendations that can be built upon, offering a very strong foundation for a more accurate reflection of the sector at regional level. The methodology is proven to be sound as a similar approach has been widely adopted by the DCMS. Whilst this research does not seek to imply that the developed method is better than the existing alternative (Creative Skillset census), it does offer a greater level of comparability, replication and granularity across any sector or subsector. This improved view can ultimately be used to better identify regional clusters and understand linkages across industries.

Current significant issues with the suggested methodology are the defined parameters. In retrospect a larger sample of known companies from each pinpointed sector should have been analysed in order to identify accurate search parameters for the database selection. However, it is intended that the recommendations (See recommendation 2) for combined best practice between the TBR and Creative Skillset methodologies could be used to benefit the comparative analysis of any subsector at a more granular level.

It is clear that a coordinated approach to the measurement of subsectors must be taken. Until better employment data is available activities can only be measured by first identifying the industry within which the activity is embedded. The process of planning the development of data collection must be designed through a joined-up approach. Mapping must be informed by a 'community of practice including policymakers, practitioners and researchers' (NESTA, 2013, p.6). The current process (SIC and SOC) is not structured to allow collaborative discussion and input by these parties.

Throughout this process the key aim has been to obtain data that underpins a fair and true representation of the animation sector, one that would bring about political parity for those employed within the sector. I have found myself questioning if indeed there is still an animation subsector and whether it needs advocacy or whether it can be recognised through the other industries it sits within? Considering the philosophical implications to come from the application of the methodology, several theories have emerged. The value of the sector of animation is still not clearly understood due to the majority of animators working within other sectors and subsectors within the creative economy. Whilst this may not always be an issue for employees, there is a risk that without representation they may not be seen to exist. This is important to me as someone who is formative in the education of animators. This misrepresentation or non- representation of employees outside of the traditional animation industry could lead to a situation where animation ceases to be taught as a distinct subject area. This dilution of the subject area's collateral and integrity of craft as a definitive sector could obstruct students from studying it in exclusivity. Furthermore its potential absorption by other subject areas could put those specialist skills at the whim of the changing topography of the media education sector. Those wanting to study animation might find it a challenge to engage in a course with the right balance of content. Animators have a specific set of skills and new entrants need to enter the marketplace with this high level skillset or the sector will lose quality and product originality.

Contribution to Knowledge

In this research the subsector of animation has been considered examining industry, employment and regional location, considering specifically the East of England as a case study. Through demonstrated application and final recommendations, this thesis offers an improved method of analysis in order to create a joined-up view of the breadth of this subsectoral regional economy.

Key Claims:

1. **Definition of the animation sector**- this thesis offers a unique view combining theoretical, educational and practical perspectives for the classification of occupations within this type of research.
2. **Level of data applied to the *Creative Trident Methodology*** – The innovative application and experimentation with Creative Skillset employment census data at UK and regional level has enabled the review of animation specific occupations across selected subsectors. Reflecting on the application of Government-recognised data through the use of TCR, this type of data has never before been used to examine the animation sector at regional level using the applied chosen methodology.
3. **Classificational discourse**- considering applied methodologies/ classifications of industry and recommendations for improved definitions for SOC codes. Improvements within the SOC classifications have been identified and justified explanations for additional definitions have been accepted and used by the Office for National Statistics. (Appendix 6.1)

Please see appendix 6.2 for Authors' Postscript

Glossary of Terms

ABI- Annual Business Inquiry

ASHE- Annual Survey of Hours and Earnings

CEP- Creative Economy Programme

CI- Creative Industries

Creative Skillset - also refers to Skillset up until its name change in April 2012

DCMS- Department of Culture, Media and Sport

DET- Data Evidence Toolkit

EEDA- East of England Development Agency

HEI- Higher Education Institution

IER- Individual Electoral Registration

IDBR- Interdepartmental Business Register

IP- Intellectual Property

LFS- Labour Force Survey

LMI- Labour Market Information

NESS- National Employer Skills Survey

NOS- National Occupational Standards- are statements of the skills, knowledge and understanding needed in employment and clearly define the outcomes of competent performance (Qualifications and Curriculum Authority's definition).

ONS- Office of National Statistics

PACT- Producers Alliance for Cinema and Television-the UK trade association that represents and promotes the commercial interests of independent feature film, television, animation and interactive media companies

RDA- Regional Development Agency

RSA- Regional Screen Agency

SIC- Sector Industrial Classifications

SIN- Skills Intelligence Networks (Skillset)

SOC- Sector Occupational Classifications

SSC- Sector Skills Council

SSDA- Sector Skills Development Agency

UKCES- UK Commission for Employment and Skills

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Seminars and Symposia

- Norwich International Animation Festival. Symposium 'Manipulated' (Wednesday 18th October 2006)
- BFI; London. Seminar: Psychoanalysis and Animation. (February 2005)
- Tate Modern: London. Three day event: Pervasive Animation. (March 2007)
- Pervasive Animation PODCAST: [Internet] March 2007.
<http://www.tate.org.uk/onlineevents/webcasts/pervasive_animation_across_disciplines/default.jsp> [Accessed March 2007]

Interviewees

(Positions correct at time of interviews)

- Stu Aitken (Technical Director/ VFX supervisor, Axis Animation, Glasgow)
- Chris Chilton (Computer Games and Animation Manager, Creative Skillset)
- Marion Edwards (Chair of the Creative Skillset Animation Forum, Member of PACTs Children's and Animation Policy Group, Red and Blue Productions, London)
- Tammy Ellis (Curriculum leader ADS Senior lecturer Interactive Media / Animation South East Essex College)
- Damian Gascoigne (Animation Lecturer Kingston University/ Picasso Pictures)
- Hedley Griffin (Managing Director, Hedley Griffin Films, Woodbridge, Suffolk)
- Steven Kirby (Freelance Motion Graphic Designer, Norwich/ London)
- Robin Lyons (Managing Director, Calon Animation, Cardiff)
- Suzie Hanna (Subject Leader Animation and MA Pathway Leader Animation and Sound Design, Norwich School of Art and Design)
- Steve Hunt (Senior Lecturer in Digital Animation, University of Hertfordshire)
- Adam Minns (Head of Policy, Children's and Animation Policy Group, PACT)
- Peter Parr (Course Leader BA (Hons) Animation, Arts Institute Bournemouth)
- Saint John Walker (Computer Games and Visual Effects Senior Lecturer, Anglia Ruskin University, Cambridge)

APPENDIX

Chapter 1
Appendix 1.1

The Cultural Cycle and statistical and other data types

CREATION	MAKING	DISSEMINATION	EXHIBITION/ RECEPTION	ARCHIVING/ PRESERVATION	EDUCATION/ UNDERSTANDING
<ul style="list-style-type: none"> ● Statistical data using SIC and SOC codes and other sources for those professionally involved (employed or otherwise) in cultural, media and sport creation. 	<ul style="list-style-type: none"> ● Statistical data on the production and turnover in the cultural, media and sport sectors. 	<ul style="list-style-type: none"> ● Statistical and other data on audience reach and diversity for produced cultural, media and sport forms. ● Statistical and other data on the use of ICTs and Broadband as a means of dissemination. 	<ul style="list-style-type: none"> ● Statistical and qualitative data on diversity of cultural, media and sport forms consumed and modes of consumption (audiences, attendance and participation etc.). 	<ul style="list-style-type: none"> ● Statistical and qualitative data on archiving, preservation and conservation. 	<ul style="list-style-type: none"> ● Statistical and other data relating to training, education, funding and investment in capital creation.
<ul style="list-style-type: none"> ● Statistical and qualitative data on research capacity and outputs. ● Information on the existence of policy toolkits and strategies to encourage and/or facilitate cultural, media and sport creation. ● Information on the existence of policy settings and strategies to address research and development needs. 	<ul style="list-style-type: none"> ● Statistical and qualitative data on availability of infrastructure for cultural, media and sport sectors production. ● Statistical and other data on reproduction of original product. ● Information on the existence of policy settings and strategies to address infrastructure and other production support needs. 	<ul style="list-style-type: none"> ● Statistical and other data on export capacity. ● Statistical and other data on sales of cultural, media and sport outputs. ● Information on the existence and policy settings and strategies to address dissemination and circulation needs. 	<ul style="list-style-type: none"> ● Statistical and qualitative data on availability of infrastructure for exhibition/reception in the cultural, media and sport sectors. 	<ul style="list-style-type: none"> ● Information on the existence of policy settings and strategies to address archiving, preservation and conservation needs. 	<ul style="list-style-type: none"> ● Information on the existence of policy settings and strategies to address training, education, funding and investment in capital creation.

(DCMS, 2004, p.24)

Appendix 1.2

Standard Definition of Cultural Domains and Functions, Mapped against available 2003 SIC Codes

1. CREATION		2. MAKING		3. DISSEMINATION	
72.21	Software publishing	24.64	Manufacture of photographic chemical material	92.12	Motion picture and video distribution
72.22	Other software consultancy and supply	24.65	Manufacture of prepared unrecorded media	51.47/6	Wholesale of photographic goods
74.4	Advertising	92.1	Manufacture of electronic valves, tubes and other electronic components	51.48/1	Wholesale of records, tapes, CDs and videos, and of playback equipment
				51.49/9	Wholesale of radios and televisions; wholesale of electrical appliances not elsewhere classified
74.81/2	Portrait photographic activities	92.20/2	Manufacture of television and radio transmitters etc.	51.47/5	Wholesale of musical instruments
74.81/3	Other specialist photography (new in 2003)	92.3	Manufacture of TV and radio receivers, sound or video recording or reproducing apparatus & associated goods		
74.81/9	Photographic activities not elsewhere classified	96.3	Manufacture of musical instruments	52.45	Retail sale of electrical household appliances and radio and television goods
92.20/1	Radio activities	92.14	Publishing of sound recordings	52.48/2	Retail sale of photographic, optical and precision equipment, office supplies and equipment including computers
				71.40/3	Renting of radios, televisions and video recorders and DVD players
				71.40/4	Renting of records and other pre-recorded media
				71.40/5	Renting of video tapes and DVDs
92.20/2	Television activities	92.31	Reproduction of sound recording	NFW	Wholesale of radio and TV goods
92.11/1	Motion picture production on film or video tape	92.32	Reproduction of video recording	NFW	Retail sale of recorded music, film, video and leisure software
92.11/9	Other motion picture and video production activities	92.33	Reproduction of computer media		

KEY:

Indicates SIC Code not included in 'old' RCDF definition.

Needs Further Work: Indicates activities with no clear corresponding SIC code(s)

NFW

(DCMS, 2004, p. 28/29.)

1. CREATION		2. MAKING		3. DISSEMINATION			
		99.72/1	Motion picture, television and other theatrical casting (NEW in 2003)	33.40/3	Manufacture photographic and cinematographic equipment		
NFW	<i>Leisure software design/development</i>	74.81/4	Film processing Previously included in 74.81/9 photographic activities not elsewhere classified				
NFW	<i>Screenplay and film development activities</i>	NFW	<i>Publishing of leisure software</i>				
NFW	<i>Research and development activities</i>	NFW	<i>Production of new or multi-media</i>				
4. EXHIBITION/RECEPTION		5. ARCHIVING/PRESERVATION		6. EDUCATION/UNDERSTANDING			
99.13	Motion picture projection	NFW	Picture and film libraries and archives	NFW	Education and training for broadcast, film, music, games; criticism related to all etc.		
AUDIO-VISUAL							

(DCMS, 2004, p. 28/29.)

Appendix 1.3

Occupational Groups	Role	Examples of Job Titles	
Producing	Animation	Producer	
	Commercials	Producer	
Production	Corporate	Producer	
	Feature Film	Development Executive, Executive Producer, Producer	
	New Media	Producer	
	Radio	Commercials Producer, Editorial Head of Department, Executive Producer, Producer, Senior Producer, Trailers Producer	
	Television	Development, Executive, Executive Producer, Producer, Promotions/Trailers Producer, Senior Producer, Series Producer	
	Archive Research	Researcher	
	Direction	1st Assistant Director, 2nd Assistant Director, 3rd Assistant Director, Director	
	Production	Continuity, Development Assistant, Production Assistant, Radio Reporter (not news), Researcher	
	Production Management	Assistant Producer, Casting Manager, Floor Manager, Location Manager, Production Accountant, Production Manager	
	Scriptwriting	Script Editor, Scriptwriter	
Journalism & Sport	Editorial	Editor, News Editor	
	Newsgathering & Presentation	Broadcast Journalist, Commentator, Correspondent, Presenter, Reporter	
	Production	Director, Producer	
	Sports Reporter/Presenter	Commentator, Presenter, Sports Journalist	
Radio Broadcasting	Audience Research	Analyst, Market Researcher, Research Manager, Strategy Manager	
	Commissioning	Commissioning Editor, Development Executive	
	Media Sales	Ad Sales Manager, Commercials Operations Assistant, Sales Executive/Manager, Sponsorship Executive	
	Presentation	Continuity Announcer, Editor, Presenter, Pres Editor, Pres Operator, Producer	
	Scheduling	Network Assistant, Planning Assistant, Scheduler	
	Sound Producing	Sound Producer	
	Station/Channel Control Management	Controller, Launch Director, Station Manager, Station Director	
	Television Broadcasting	Acquisitions	Acquisitions Manager, Acquisitions Assistant
		Audience Research	BARB Analyst, Market Researcher, Research Executive, Research Manager
		Channel Control	Channel Editor, Channel Manager, Controller
Commissioning		Commissioning Editor, Development Executive	
Media Sales		Ad Sales Manager, Commercial Operations Assistant, Sponsorship Executive	
Operations		Anyone responsible for the satellite signal	
Presentation		Announcer, Continuity, Editor, Pres Operator, Producer	
Satellite & Cable Distribution/Network Development		Affiliate Marketing Executive, Affiliate Sales Manager, Decoder Coordinator	
Satellite & Cable Network		Broadcast Engineer, Network Operations Manager, Operations Assistant	
Scheduling		Planning Assistant, Network Assistant, Scheduler	
Signing		Signer	
Subtitling		Languageing, Stenographer, Subtitled	
Programme Distribution		Management	Director of International Relations, Head of Licensing, Sales Director
	Operations	Acquisitions Assistant, Licensing Assistant, Programme Co-ordinator	
Transmission	Management	Head of Department, Head of Design, Head of Maintenance	
	Operations	Electrician, Engineer, Rigger, Technician	
Broadcast Engineering	Operations	Outside Broadcasting, Studio Engineer, Technical Operators, VT Engineer	
	Plant and Maintenance	Electrical Maintenance Engineer, Plant Engineer, Service Engineer	
	Project Engineering	Design Draughtsman, Project Design Engineer	
Studio Operations	Sound Recording & Reproduction	Sound Supervisor, Studio Manager (Radio)	
	Videotape Operation	Autocue Operator, VT Operator	
	Vision Control	Director, Vision Controller	
	Vision Mixing	Vision Mixer	
Interactive Media	Content	Animator, Asset Researcher, Copywriter, Illustrator, Search Engine Optimiser, Sound/Video Editor, Web Editor	
	Creative	Creative Director, Graphic Designer, Interface Designer	
	Planning, Pre-Production	Consultant, Information Architect, Producer, Strategist	
	Production/Implementation	Asset Optimiser, Production Assistant, Programmer, Site Builder, Sound/Video Compressionist	
	Quality Assurance	Account Handler, Proofreader, Usability Tester	
	Sustainability & Exploitation	Localisation Specialist, Search Engine Specialist, Site Manager, Webmaster	
	Technical Design	Database Designer, Interaction Designer, Systems Analyst, Technical Director	

Occupational Groups	Role	Examples of Job Titles
Drawn/Stop Frame Animation	Pre-Production Primary Creative Production	Character, Set and Prop Builders, Designer (Character, Location and Prop), Layout Artist, Script Editor, Storyboard Artist Art Director/Principal Design, Director, Producer, Writers Animation, Background Artists, Compositors, Digital Paint and Trace Artists, D.O.P./Camera
2D/3D Computer Animation	Pre-Production Primary Creative Production	Designer (Character, Location and Prop), Editor, Storyboard Artist. Art Director/Principal Design, Director, Producer, Writers Animator, Composer, Lighting, Modelling, Technical Director, Texture Artist
Art & Design	Artist Graphic Design Operator Production Design Props Set Crafts Set Design	Lettering Artist, Scenic Artist, Sketch Artist Graphic Designer Graphics Technician Art Director, Production Designer Buyer, Property Master/Mistress, Set Dresser Carpenter, Construction Manager, Painter, Plasterer, Rigger Art Director, Set Designer
Camera	Design Production	Director of Photography Camera Director, Camera Operator, Clapper Loader, Focus Puller, Grip, Stills Photographer
Costume/Wardrobe	Design Dressing Making Stores/Supply	Chief Costume Designer, Costume Designer, Costume Stylist Senior Dresser, Wardrobe Assistant, Wardrobe Supervisor Costume Maker, Dressmaker Costume Stock Operative, Wardrobe Assistant
Library/Archives	Library/Archives	Archive Librarian, Archivist, Film Librarian, Music Librarian
Lighting	Design Operations Setting/Placing	Lighting Director Console Operator Lighting Assistant, Production Electrician, Rigger
Make Up & Hairdressing	Design Hairdressing Make Up Stores	Chief Hairdresser, Make Up Designer Hairdresser, Hairdressing Assistant, Wigmaking Assistant Make Up Artist, Make Up Assistant, Special Effects Make Up Artist Make Up Stores Assistant
Post-Production	Audio Bookings Digital Effects Editing Engineering Graphics New Media Facilities Production VT	Assistant Dubbing Mixer, Dubbing Technician, Senior Dubbing Mixer, Sound Editor, Sound Engineer Bookings Assistant, Bookings Manager, Client Liaison Manager, Facilities Manager Digital Effects Supervisor, Digital Matte Artist and Digital Compositing Artist Assistant Film Editor, Film Editor, Non-linear Editor, Tape Editor, Technical Assistant Assistant Engineer, Chief Engineer, Junior Engineer Graphic Designer (various grades) Compressionist, New Media Technician Producer, Supervisor Junior VT Operator, Senior VT Operator
Sound	Sound Recording & Reproduction	Boom Operator, Sound Assistant, Sound Recordist
Special Physical Effects	Design Manufacture Operations	Special Effects Designer Pyrotechnics Technician, Special Effects Model Maker Special Effects Operator
Runner	Runner	All entry-level Running Jobs
All Other Occupational Groups	Admin/Secretarial Finance General Management Human Resources IT Legal Premises Operations Press & PR Sales & Marketing	Admin Assistant, PA, Secretary Accountant Board of Management, Chief Executive, Other Senior Managers Personnel Officer, Training Manager Database Administrator, IT Manager, Network Administrator, Programmer, Server Administrator, Server Architect Solicitor Caterer, Cleaner, Security Officer Press Officer Marketing Manager, Sales Manager

(Skillset, 2004, p.20/21)

Appendix 1.4

East of England	Employees (inc. contracts of 365 days or more)				Freelancers (inc. contracts of 365 days or less)				Total (Employees and Freelancers)			
	Total Number	Number of Females	Number of Ethnic Minorities	Number of Disabled	Total Number	Number of Females	Number of Ethnic Minorities	Number of Disabled	Total Number	Number of Females	Number of Ethnic Minorities	Number of Disabled
Broadcast Television	300	100	*	*	100	100	*	*	400	200	*	*
Cable and Satellite Television	0	0	0	0	0	0	0	0	0	0	0	0
Independent Production (TV)	200	100	*	*	300	100	*	*	500	200	*	*
Community Television	0	0	0	0	0	0	0	0	0	0	0	0
Television Distribution	0	0	0	0	0	0	0	0	0	0	0	0
Broadcast Radio	800	400	*	*	400	200	*	*	1200	600	*	*
Independent Production (Radio)	0	0	0	0	0	0	0	0	0	0	0	0
Animation	*	*	0	0	*	*	*	0	*	*	*	0
Web and Internet	100	*	*	0	200	*	*	*	300	100	*	*
Offline Multimedia	700	300	*	*	100	*	*	0	800	300	*	*
Interactive TV	0	0	0	0	0	0	0	0	0	0	0	0
Mobile Content	0	0	0	0	0	0	0	0	0	0	0	0
Computer Games	400	*	*	*	100	*	0	*	400	100	*	*
Corporate Production	100	*	*	*	200	100	*	*	300	100	*	*
Commercials Production	100	*	*	0	*	*	*	0	100	*	*	0
Pop Promos	*	*	0	0	*	*	*	0	*	*	*	0
Post Production	100	*	*	*	300	*	*	*	400	100	*	*
Special Physical Effects	*	0	0	0	0	0	0	0	*	0	0	0
Studio & Equipment Hire	100	100	*	*	200	*	*	*	300	100	*	*
Outside Broadcast	*	*	0	0	*	*	0	0	*	*	0	0
Transmission	0	0	0	0	0	0	0	0	0	0	0	0
Manufacture of AV Equipment	400	100	*	0	100	*	*	0	500	100	*	0
Other Services for Film &	3400	1800	200	*	2600	600	200	*	6000	2400	300	100

TV												
Film Distribution	0	0	0	0	0	0	0	0	0	0	0	0
Processing Laboratories	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	6700	3000	300	100	4600	1200	300	*	11300	4200	600	100

Total figures are rounded to the nearest 100. A * indicates a figure less than 50 but greater than 0.

http://www.skillset.org/uploads/excel/asset_10412.xls?1 (November 2007)

Appendix 1.5

REGION 3: THE EAST OF ENGLAND

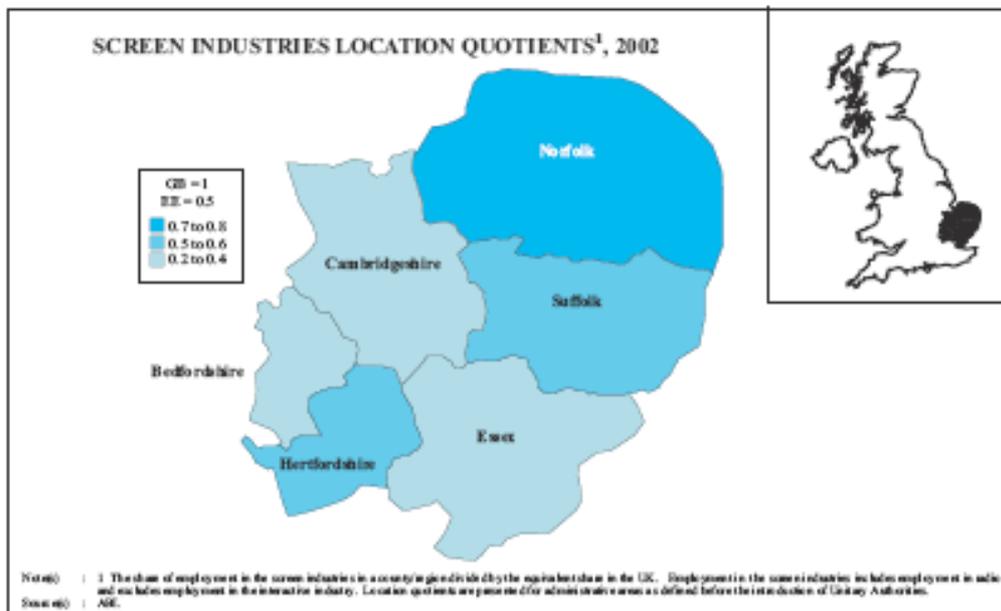


TABLE 3: EMPLOYMENT IN THE EAST OF ENGLAND, 2002

	Screen Industries		Software Consultancy and Supply		Total	
	level	%	level	%	level	%
Bedfordshire	253	0.1	2653	1.2	223098	100
Essex	950	0.2	5514	0.9	614448	100
Hertfordshire	1242	0.3	9946	2	487617	100
Cambridgeshire	613	0.2	8181	2.4	340842	100
Norfolk	1166	0.4	1057	0.3	307331	100
Suffolk	709	0.3	1401	0.5	280404	100
East of England	4933	0.2	28752	1.3	2253740	100
Great Britain	113936	0.4	280682	1.1	25380255	100

Note(s) : Employment in the screen industries includes employment in radio.

E6

(CE/ Optima, 2005, p.142/143)

Economic Impact of the UK Screen Industries

TABLE 3A: EMPLOYMENT IN THE EAST OF ENGLAND, 2002

	Motion Picture Production	Motion Picture and Video Distribution	Motion Picture Projection	Radio and TV Activities	Reproduction of Video Recording	Reproduction of Computer Media	Software Consultancy and Supply
Hertfordshire	46	10	28	166	2	1	2653
Essex	109	31	423	274	8	105	5514
Hertfordshire	364	18	320	485	22	33	9946
Cambridgeshire	44	5	257	251	2	54	8181
Norfolk	76	16	178	892	3	1	1057
Suffolk	72	13	255	157	211	1	1401
East of England	711	93	1461	2225	348	195	28752

TABLE 3B: EMPLOYMENT IN THE EAST OF ENGLAND, 2002

	Motion Picture Production	Motion Picture and Video Distribution	Motion Picture Projection	Radio and TV Activities	Reproduction of Video Recording	Reproduction of Computer Media	Software Consultancy and Supply
	(% of total)						
Hertfordshire	6.5	10.8	1.9	7.5	0.8	0.5	9.2
Essex	15.3	33.3	29.0	12.3	3.2	53.8	19.2
Hertfordshire	51.2	19.4	21.9	21.8	8.9	16.9	34.6
Cambridgeshire	6.2	5.4	17.6	11.3	0.8	27.7	28.5
Norfolk	10.7	17.2	12.2	40.1	1.2	0.5	3.7
Suffolk	10.1	14.0	17.5	7.1	85.1	0.5	4.9
East of England	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 3C: EAST OF ENGLAND DYNAMIC MULTIPLIERS FOR VALUE ADDED OUTPUT

	Film	TV	Corporate video	Advertising (£ increase in value added output per £1 increase in export sales)
Regional dynamic multiplier	0.9	1.1	1.0	1.0
UK dynamic multiplier	2.1	2.3	2.1	2.3

Note(s) : Regional dynamic multiplier = increase in the region's entire value added over four years per unit increase in export sales by firms in the specified industry and region.
 Note(s) : UK dynamic multiplier = increase in the UK's entire value added over four years per unit increase in export sales by firms in the specified industry and region.
 Source(s) : Cambridge Econometrics.

Chapter 2

Appendix 2.1

Skillset Census Sectors

Broadcast Television
Cable and Satellite
Independent Production (TV)
Broadcast Radio
Animation
Web and Internet
Offline Multimedia
Computer Games
Corporate Production
Commercials Production
Post Production
Special Physical Effects
Studio and Equipment Hire
Other Services for Film and TV
Cinema Exhibition
Film Distribution
Other Distribution
Processing Laboratories

Appendix 2.2 – Interviews

(Consent Forms are at the back of the Appendix)

STU AITKEN

Technical Director/ VFX Supervisor AXIS Animation

06/03/08

- Is there a need to maintain a stable definition of animation for industry?

A bit open ended this one - from who's perspective? from mine no not really - animation is simply any method of making things appear to move artificially (i.e. without actually filming things moving) and can cover a myriad and indefinable list of techniques to do so animation for industry I guess would be doing so in the service of some kind of commercial need - predominantly entertainment, information and advertising as opposed for purely creative non-commercial reasons

I think commercial animation is a better term than animation for industry though - many times animation is a commercial venture in itself :)

- What do you see as the barriers to growth within the animation industry?

Falling budgets (a direct result of more open entertainment platforms and increased diversification of delivery mediums like the internet and cable - ironically this means there are more opportunities to sell animation services but often for much lower budgets)

Trying to create an impact in a crowded market

Lack of available talent (i.e. outside London)

- Do you see your company as a business or creative venture, can it be both?

both - I would imagine almost any creative industries company would answer the same - your doing something you perceive as having creative value but for commercial reasons as well as creative ones (i.e. to make money from doing so)

- How do you perceive relationships between companies in the animation industry sector?

generally pretty good actually - there is a good community and despite competition companies will often work for and with each other - European funding model for animated entertainment makes this especially so on TV and film projects where studios from different countries collaborate to maximise available funding or tax breaks

- How would you define yourself/ your company in terms of the animation sector?

Please see our website blurb :)

- Who are the drivers and creators of the market?

Yikes - bit of a big one this - for us games studios/publishers and commercials agencies - i.e. that's where most of our commissions come from

- Who in your opinion defines policy relating to the industry? How does this effect you?

Don't really understand what you mean by this? - what kind of policy are you referring to?

- What are your thoughts on Higher Education animation training?

in this country pretty bad, in France for example its brilliant - judged mainly from quality of graduation reels - I don't think animation as a career is properly represented at an early enough age and many course at higher education level focus too much on the individual as a creator and not enough on them as a member of a team that creates (which is almost always the case commercially)

- In your opinion what defines Excellence within the animation industry?

ummm - those who can create quality animation and have commercial success doing so - you could probably write a PhD thesis on what's constitutes quality in itself but originality certainly helps but usually in conjunction with what I'd term 'polish' - i.e. everything is well crafted

CHRIS CHILTON
Computer Games & Animation Manager, Skillset

5/10/07

How does Skillset define animation for the purposes of data collection?

For the most part our survey's (e.g. the employment census) are self determining – we will target companies in various directories and our own previous contacts, however they are always asked the question about which sector they see themselves as part of. Animation companies are a bit different as they span different areas (film / TV / post production) In addition we count animation as a job role – so we get figures for, for example the number of people working in games whose primary activity is animation.

Who are the major policy makers in terms of the animation industry/ who for Skillset defines policy relating to the industry?

Our animation forum – chaired by Marion Edwards (membership online - <http://www.skillset.org/animation/about/>)

What are the defining papers/ research that has had the most effect on the animation industry- with regard to the development, conservation and breadth of understanding?

In terms of skills – it will be the AVITG report of 2001 which recommended the formation of the forum. (exec summary - http://www.skillset.org/uploads/pdf/asset_178.pdf)

MARION EDWARDS

(Chair of the Skillset Animation Forum, Member of PACTs Children's and Animation Policy Group, Red and Blue Productions)

01/01/08

My Questions to you and the Skillset Animation Forum

- What are your views on how animation is currently defined particularly by/ in relation to Skillset and its data collection?

ME: The Skillset census gives a good start point for focus as it imbeds animation roles within occupational groups giving a better overview of the crossovers within the industry. However, how these results are measured and the data recorded might need further review (would need to look at results and data in detail). The census also covers a breadth of the industry and so a good cross section of various companies and individuals is measured.

- What extra input or information in relation to animation sector intelligence do you think the Animation Forum might benefit from?

ME: Better Alumni tracking. Might be worth looking at other industries and how they collect this data at the moment.

- Who are the major policy makers in terms of the animation industry in the UK/ who in your opinion and for Skillset defines policy relating to industry? (E.g. Government bodies such as DCMS, UK Trade and Investment, the UK industry, education...)

ME: Depends on which area of the industry you are looking at; Funding for production, training or education. In terms of funding for production the broadcasters and distributors drive the industry, but this needs to change. See Adam Minns and the calls for a government tax credit and Ofcoms review.

- What are the defining papers/ research that have in your opinion had the most effect on the animation industry-with regard to the development, conservation and breadth of understanding?

ME: Not many reports written by outside organisations beyond PACT and Skillset about this area. Reports also tend to be written on behalf of these organisations and tend to be written at moments of crisis.

- How are the Animation forum members selected?

ME: The forum is currently about to undergo a restructure. The forum members are however, selected to reflect a cross section of the nations and regions and across the different genres of animation.

My Questions to you as an industry practitioner

- What do you see as the barriers to growth of the animation industry?

ME: Funding for TV and film and competition from overseas.

JW: Is this competition in terms of ideas or production?

ME: In terms of crew looking for work from Europe and the states with traditional talents. UK is perceived as a vibrant industry and many of the people traveling here to look for work have very specific skills and talents.

- Do you think there is a good relationship in-between the animation industry sector?

ME: Yes, friendly and lots of shared best practice among companies.

- Thoughts on Animation Education?

ME: Definitely improving, there are a lot of different courses. The state of education is poised and about to change, about to turn around and get a lot better as a result of closer industry dialogue and the opportunity to hone specific skills. There are currently six skillset accredited courses and the graduates that come from these courses have gone into employment. There is definitely room for two the two types of courses that seem to be emerging auteur courses and production line style teaching but, it is important that potential students are steered towards the appropriate course for their needs. Not all animation students will become directors or producers and so better information needs to be available when making those decisions. We have come out of a period in education where everyone made their own film, it is important students understand about different areas and opportunities now.

Links: Devon- blossoming animation industry

Spider Eye (Cornwall-St Just) Erica Derby Moved company from London in 2001

Spider Eye is a UK animation company producing 2D traditional, digital and 3D animation for TV and film.

King Rollo Films (Honiton, Devon) - Leo Nelson leo@kingrollofilms.co.uk

King Rollo Films is an award winning animation studio, BAA 1999 and BAFTA 2000. We were nominated for an Emmy in 2005.

King Rollo Films have produced programmes for BBC, ITV, Channel 4, National Geographic, Disney, Discovery Kids, Nickelodeon, Universal Pictures, Abbey Home Media, Penguin Books, Walker Books and Dorling Kindersley.

Honey Comb (Ha!) (Cheriton Fitzpaine, Crediton , Devon) Simon/ Sara Bor

Also speak to someone like Mike Milne (Framestore CFC) or Rushes- Matthew Sagar or Louise Hussey.

TAMMY ELLIS

(Curriculum leader ADS Senior lecturer Interactive Media / Animation South East Essex College)

03/04/08

(Have you looked at employment with regard the East, where are the hot spots, do drop figures in, does it differ between men and women)

Traditional animation is changing, it's the combination of old school techniques relating to cgi look towards the new 'Tails of the river bank' - New cgi skills being combined with traditional stop motion...interesting development'

I agree that most of our children's TV is imported and industry do need to help the home-grown market)

In one section of a top production company out of 12 workers only three were from the UK, the rest were from Europe. The UK individuals seem to miss the basic skills and lack the mature work ethic need to sustain the long hours of concentration. 'There were comments made to our binge drinking culture effecting studio'

• **Education Themes and Questions relating to the definition of animation:**

- Is there a need to maintain a stable definition of animation in academia?

The term Animation has evolved and it seems to be acting as an umbrella of all sorts of types of moving image. It seems to be in a transitional stage, with boundaries blurring and skills crossing over within educational establishments and production houses. As technology is becoming more accessible.

It seems to be more open to what is being classed as animation now days.

Animation can be integrated into a performance, moving image installation, fine art animation etc. It seems we are shifting back to creativity and experimental stages. Its still evolving

With regard the academic framework, I do feel that some courses out there are cutting corners and forgetting to deliver the fundamental basics. Perhaps we should all go back to the basics to help define a support delivery within the academic content. I do feel some education establishment are classing editing post skills as animation I do think there is a difference, and you will start to see new types of course being developed VFX, which might help define the classification to what is regarded as animation v post moving image.

After all a few Bafta's were won by stop motion animations. 'Peter and the Wolf'
Suzie Templeton.....etc.....

- Do you think the definition of animation has any influence on curriculum development?

What is classed as the definition at the start can shape the type of course content, will it be of a VFX/ post content or follow a more traditional old school format stop motion cell etc....

When writing a course program there are other accountabilities that do impact on the framework. Like educational politics and academic boards, the lack of long term funding for equipment, training, government rules and guidelines can also get in the way with regard delivery. Do the academic boards understand how time consuming animation is? Each educational establishment has different restraints. Then there is also industry, does the course content really cover what industry needs and are looking for from there future employers.

Realistically can education keep up with the technology and in some cases Skill Set?
Do Skill Set really listen to the feller's right at the top of the game in industry.....

There are those in industry at the top end of film that don't always agree with Skill Set, and that have offered support..... but that's another argument for another time.'''''

●How much do technical developments effect the definition of animation and the breadth of the curriculum?

Animation is a progressive area due to the developments of technology, new technology is shaping and classifying what is now being accepted as animation. The technology not only shapes the viewing markets, but also defines studio production houses, and also shapes the way learners work no matter what the background or skill level required.

Individuals and educational establishments seem to have access to all types of equipment defined by a fixed consumer budget. It's the funding that helps Shape the kind of studio methods and teaching practices used. Also it's the trained and talented staff that can play a key role in shaping a program. 'It's a balance'

In some educational universities and college research development plays an important part. Educational establishments do find it hard to keep up with the high end of industry developments due to lack of funding for equipment and space.

Granted that computer technology has brought the viewer some revolutionary animation and post production special effects over the years, and more accessibility has meant anyone can create a moving image sequence.

However technology can not hide the lack of skill and talent, and should not be used as a poor excuse or a quick fix, remember the computer is just a tool. It all starts with the basics, a good story line, creativity, the eye, talent, understanding and perfecting techniques etc... . It's all in the planning. Even the TD's will tell you that.

Students do tend to want to jump on to the computers and create stunning visual effects, before they even grasp the basics. Students can be blinded by the technology and think that animation is all about the click of the button, so it is important to keep the traditional methods a live as they help to sustain discipline and concentration. It's this under pinning that helps form the long term developments of an individual, and helps shapes long term skill based learning. You never stop learning, where moving image is concerned. It's always under a state of flux.

For example (It still comes down to the basic foundation elements)

On the low level courses (i.e. Btec's the fundamental basics need to be addressed as it's the fundamental basics that underpin the learning program long term. Courses should cover the basic principle the arcs the extremes and in-betweens, supported by life drawing, stop motion, cell basic editing, storyboarding etc as the studio methods used 'The nuts and bolts, the Toolset' As learners progress through on to higher levels then the integration of more sophisticated technology can be integrated into a learning program, as there is a foundation to build on.

- What influence do vocational Partnerships have on the structure and definition of the curriculum?

That's an interesting one, as there are new media course being put together, they are being mapped out with industry in mind, with the idea placement and training on the job. I would love more industry to get involved. But industry always comes from the side

'What's in it for them?' We can invest in the training on the job, but they will not learn it all, also we can spend the time training and then they go else where...etc...."

Also industry & education academic boards don't always agree where the frameworks concerned. Saying that if you have the right team of academics who are sensitive to the progressive and pervasive needs and industry working in balance could help. You might even see private training schools running in the format of Europe schools.

Ask the question why do the Europe schools do it better?

- In your opinion what defines excellence within the animation industry?

Arrrrh ,,,,,,Define Excellence, are we looking for technique, visual impact, the whole thing. ????

.
For me its beauty, beauty of a well crafted production something that will make me stop and think for a moment. It tends not to matter what form it comes in, It has to grab my attention, be it stop motion or moving image. Etc

In fact I have been known to turn the sound off when watch things, just to study the craft and flow of the production content.

DAMIAN GASCOIGNE
(Animation Lecturer Kingston University/ Picasso Pictures)
05/03/08

- Is there a need to maintain a stable definition of animation in academia?

I feel strongly that Animation education in the UK is in danger of losing touch with the changing reality of the Industry and the effect that technology has had on animation production. We still cling to the idea of the solo film maker auteur, which runs contrary to the new forms of team needed to produce animation. Specifically technical skills such as modeling, rigging, skinning, technical directing, lighting and rendering are way beyond the abilities and expertise of one individual. So, we either have to go the way of the French Schools at Supinfocom and Gobelins, and instruct students to work in groups of three to six on their films, or we have to forget all about making films using the digital technology and get them to work solely on character design, animation skills, or storyboarding.

- Do you think the definition of animation has any influence on curriculum development?

Of course. We need to keep an open view in which anything that is broken down into frames can be animation, and that we should be seeking to invent and experiment with possibilities for movement language but at the same time recognise the need to also develop a better team working culture in our courses

- How much do technical developments effect the definition of animation and the breadth of the curriculum?

See above. We now encourage collaboration between students so that they can manage the complexity of the technology. We are also looking at ways to create teams to work on the best projects following a pitching process, in which the best ideas get made by a group of four students.

- What influence do vocational Partnerships have on the structure and definition of the curriculum?

Sorry? I don't understand. What are vocational Partnerships?

- In your opinion what defines excellence within the animation industry?

There are so many branches to the Industry, which areas do you want me to comment on?

"Ratatouille" by Pixar is excellent in that it is a well researched, and embedded in its subject matter.

"Sony Bravia" advert is excellent in that it uses technology sparingly and allows for an element of accident.

" Kamiyas Correspondence" by Sumito Sakakibara is excellent because it is so lovingly crafted and poignant.

"The Pearce Sisters" by Luis Cook is excellent because it brings illustration and 3D animation closer than anything else before it.

HEDLEY GRIFFIN
Hedley Griffin Films
05/03/08

- Is there a need to maintain a stable definition of animation for industry?

Why should this be needed? Animation is like any form of creativity. It is and should be boundless. The more diverse it is the better. It should be expressed in as many different ways as possible to explore the realms of creativity.

- What do you see as the barriers to growth within the animation industry?

The main barrier to growth is the lack of TV space and lack of support from TV stations in England, which buy in from abroad because, very simply, it is cheaper to do so. This has also affected animation budgets, which has dropped a great deal, particularly with competition from animation studios abroad. The growth of animation has been directed more towards the games industry with its bias towards 3D, therefore creating even less opportunities for conventional drawn animation. The industry is healthy and developing in schools and colleges as the cost of educational software packages has offered greater availability. Many different simpler forms of software are now free to download online, increasing the opportunities for Sunday Animation. There is a growing culture of home videos and short cartoons that are entered in festivals and MySpace, U-Tube, etc. All very healthy for a broader horizon of creativity.

- Do you see your company as a business or creative venture, can it be both?

It is very difficult to be both a business person and creative, but it is essential if you are to succeed. You have to learn to be firm and manage people as well, otherwise you may fail. Although I love my work, I would not do it if I was not paid for it.

- How do you perceive relationships between companies in the animation industry sector?

When I was in London, the competition was and always will be hot, but given the opportunity to meet fellow animators I found this a great experience, very often to share the woes and gossip within the trade. I found most, if not all, willing to share, a most gratifying experience.

- How would you define yourself/ your company in terms of the animation sector?

I have never felt a part of anything. It was always a case of finding the next piece of work, getting it done on time and then getting paid on time, then thinking about where the next job would come from, etc, etc. The whole industry works in this fashion. The last twelve years of my career spent working for schools television was blissful, plenty of work, nice people and I earned a good income, but I never felt a part of anything.

- Who are the drivers and creators of the market?

They used to be TV stations, but the industry has changed.

- Who in your opinion defines policy relating to the industry? How does this effect you?

The BBC has cut back enormously on their spending for schools television and Channel 4 no longer supports it.

- What are your thoughts on Higher Education animation training?

There will always be a need for creativity, the same as painting, sculpture, etc. The Art of painting came from an industry that required drawers and painters. The same is happening as the industrial need declines the art of animation will flourish.

- In your opinion what defines Excellence within the animation industry?

Individuals and people's endless creative need to innovate and surprise.

STEVEN KIRBY
(Freelance Motion Graphic Designer, Norwich/ London)
02/04/08

- Is there a need to maintain a stable definition of animation for industry?

For the purposes of statistics and data collection I can see why one might wish to define animation, but I see no urgent reason why the industry itself would require such a definition. It would probably be useless within 10 years anyway... all the arts thrive on breaking boundaries and if one defines a set of criteria for inclusion in a theoretical category, sooner or later it will come down to a question of semantics whether a certain work is included or not. Then you are just back to square one except you have to define 'movement' instead of another fairly abstract word. Also, since one cannot very well make the word animation a trademark, any definition is only likely to be recognised by those whom it suits. 'The animation industry' is essentially everyone who calls what they do 'animation'. If industry or government bodies decide to not recognise a proportion of this industry as animation, they run the risk of slipping behind common usage and thus being useless. I know the question you've asked is about need and I've harped on about impossibility, but I think the two are bound together – 'industry' knows how much of a grey area 'animation' is and I think it would be extremely skeptical of any definition.

- What do you see as the barriers to growth within the animation industry?

Not sure if you mean internationally or just in the UK. I don't see any barriers to international growth, apart from general economic downturns which affect all industries in some way. I don't really see any barriers as such actually... Challenges yes, but I would imagine animation to have a great future in the next 10 or 20 years. Doubtless markets, platforms and production and distribution networks will shift, but apart from WWII / global environmental disaster / etc I can't see any barriers. Anyone can make virtually any kind of animation these days with a laptop and a scanner or whatever. All you need is a good idea and lots of time, both of which can result eventually from dedication.

- Do you see your company as a business or creative venture, can it be both?

I don't have a company, but as a freelancer I see my work as both a business and a creative venture. Most business people I know view their business as a creative venture. Not always vice versa.

- How do you perceive relationships between companies in the animation industry sector?

I'm afraid I don't know enough experience to have an accurate perception.

- How would you define yourself/ your company in terms of the animation sector?

I am currently using the words 'design + motion + direction' which is a shorthand for Graphic Design, Motion Graphic Design and Art Direction. I don't consider myself a part of the 'animation sector' so much as a part of the 'design sector' although what I do does sometimes require animation and animation related skills.

- Who are the drivers and creators of the market?

Drivers: People who watch television, major broadcasters and their market research companies/departments, commissioning editors. Creators: Animation production companies and their staff.

- Who in your opinion defines policy relating to the industry? How does this effect you?

Do you mean government policy? Presumably government and their think tanks and other policy makers... Sorry I don't really know anything about this. As far as I am aware (not much) it doesn't affect me at all.

- What are your thoughts on Higher Education Animation training?

In an increasingly global, cross-platform, exploitation-hungry market, perhaps we ought to be training more Art Directors and Production Designers and Producers than animators. But further education is an industry with its own rules of supply and demand which don't necessarily reflect those of the same name industry/market itself. Given that students are entering a highly competitive industry perhaps they should be encouraged and educated to specialise and be able to concentrate on one chosen area such as character design, production, script writing, compositing etc rather than all students actually practicing animation itself. I don't want to suggest that the employment market should dictate course syllabus, but I wonder if the present system isn't producing a lot of all-rounders with more-or-less undifferentiated skillsets. Bear in mind I don't know that much about Animation HE in fact...

I also think there is a huge benefit in students undergoing some kind of apprenticeship where they have a one-to-one, unique relationship with an industry practitioner. The practicalities of this may seem unfeasible at first but similar schemes have been very successful at Goldsmiths for example.

- In your opinion what defines Excellence within the animation industry?

Originality of vision, good storytelling / sequentially... this is a really difficult question... Appropriate use of technology to benefit the concept and style (assuming a good concept), a good sense of what animation can do that no other medium can...

ROBIN LYONS
Managing Director, Calon
05/03/08

Industry Themes and Questions relating to the definition of animation:

- Is there a need to maintain a stable definition of animation for industry?

Need to recognise what is being supported but how much value is in it beyond Rights and IP for Children's TV?

Should animation be defined as different from other media? Quite different concerns with types of animation.

Focus of PACT has shifted to include Children's with animation- speak to Adam Minns about this decision.

Broadcasters pay much less in terms of budget, animation is instantly defined as different from other media. It has quite different concerns and is a special case in relation to agreements and buy out.

It is also important to consider whether you are talking about the definition of animation as content or application.

- What do you see as the barriers to growth within the animation industry?

Animation is not competing on a level playing field with other international companies. Government do not recognise animation and the intricacies of production because it is not a vote winner. The animation industry is too small in this country and does not show up on the government radar.

Could this not be because it is not recognised properly?

No, because thinking about areas like the Special Effects Industry and digital post animation it is a service industry and there is not as much value associated with this area as there is with IP value in children's film and series production.

Because animation has a commercial IP value outside of TV it is impossible to get broadcasters to fully finance a production.

With live action children's production broadcasters will fully finance production because it is quicker to produce.

- Do you see your company as a business or creative venture, can it be both?

Viewed creatively.

- How do you perceive relationships between companies in the animation industry sector?

In Wales there is a much better co-productions situation- Wales creative IP fund commercial investment scheme is tremendously supportive and recognises the necessity to keep IP and rights in Wales in terms of sustainable investment. S4C is also growing its children's output at a

time when most other channels are decreasing theirs. (See Feb/March issue of Imagine Magazine)

The Welsh Animation Group (WAG) has brought companies together; there is a definite sense of community and communication in order to get things done. This is not quite the same in the UK, esp. London where there is a real sense of competition and suspicion.

- How would you define yourself/ your company in terms of the animation sector?

Children's production company working on a local level.

- Who are the drivers and creators of the market?

Bigger public companies, the animation industry is dominated by exporters and rights companies) such as HIT, Entertainment Rights Plc, Corrine? Target- they have access to funding and so therefore it is pretty certain that it will get made. With Broadcasters there is a limited choice in terms of breadth and finance.

Better to hand it over to an exporter or rights company to manage then? But what are the negative points?

Loss of rights and IP along with long term revenue.

- Who in your opinion defines policy relating to the industry? How does this effect you?

Skillset, PACT Children's and Animation Policy, Adam Minns, Government lack of knowledge of the industry.

- What are your thoughts on Higher Education Animation training?

Pretty useless! Too many students, a poor selection process, unable to or haven't learned the basics, no inspiring teachers. This applies to both schools of thought on education- the vocational, training style and the autonomous craft based discipline.

- In your opinion what defines Excellence within the animation industry?

SUZIE HANNA

(Subject Leader Animation and MA Pathway Leader Animation and Sound Design, Norwich School of Art and Design)

03/03/08

- Is there a need to maintain a stable definition of animation in academia?

All courses that I am familiar with take a slightly different approach, and they aim at varying 'markets' for graduate talent. I think the most important thing is to maintain debate about the definition of animation but also to recognise its shifting and growing place in media production. If all animation courses provided the same set of skills it would diminish the breadth of graduate opportunity overall, and I think there is a danger in the narrowness of the existing definitions. The terms for Skillset course approval, for instance, are very much centered on some quite outdated ideas about what animation may be.

- Do you think the definition of animation has any influence on curriculum development?

Yes, a narrow definition will create a narrow curriculum. I have observed a lot of 'team' work at undergraduate level which is supposed to reflect animation 'studio' practice, but often the students are too young and inexperienced to really benefit properly, a real animation studio would contain a number of people with varying amounts of experience, and some would have senior roles in the production process. There are inherent problems in trying to recreate this situation without that varied mix of talent and experience in the actual group.

Also in Creative Higher Education ideas should be at the basis of all student work, and I have seen an awful lot of 'exercises' set to train students in drawing skills for instance, when this should be linked more to self-expression rather than just pure imitation perhaps. This comes from the 'studio' model, e.g. first years clean up, second years in-between, some third years get to direct but many work on other aspects e.g. painting backgrounds.

This is a very different curriculum to the one at NSAD where we set live projects to train individual students for real deadlines, and encourage students to take on a host of transferable skills particularly in the analogue/digital translation areas, and we foster a more directorial style including such matters as sound design, copyright, directing actors, so students take a lot of individual responsibility for the whole process.

A graduate in the early nineties (who has done extremely well and worked as a traditional animator and series director ever since) told me that after leaving NSAD he added a lot of purely imitative animation to his reel to show his flexibility as an animator as the 'industry' then was more interested in whose work you could copy than in any ideas of your own. This shows the dilemma quite well, the 'industry' wanting Higher Education to basically TRAIN students to imitate what was or is already out there rather than challenging it and being innovative. But on the other hand, who are making commercials and pop videos now? The innovators.....

- How much do technical developments affect the definition of animation and the breadth of the curriculum?

If a student is studying Games Design there is an assumption they will be using CGI as their main tool and the curriculum would have to put a lot of hours into that area of training as it is a huge software platform. All course leaders have to think very carefully about the emphasis on analogue and digital skills, and how to timetable the learning pattern in the right order. My

tactic is to always teach software in relation to an academic project. I do know that some courses teach the digital elements quite separately in their own right, but I think that to embed knowledge it must have a creative function for the student in the first place. Does this affect definitions? Well, I suppose a lot of compositing techniques have become quite prominent in animation, and a traditional view of that may be seeing it as a poor relation, i.e. not REALLY animated, just moving images. (And I agree in many cases!) Also what used to be called Special Effects is now often referred to as Animated Effects as the frame by frame technology has become so sophisticated and the special box set DVDs show the animators on the job.

Technical developments have affected the curriculum hugely over time, and I could spend many happy hours describing how, but the expectations of student production values have rocketed in recent years as access to more sophisticated software and higher resolution imagery and sound is made more affordable. Animation students are expected to take on a massive amount of new knowledge as well as having a lot of traditional grounding, so a pretty stressful subject to study!

●What influence do vocational Partnerships have on the structure and definition of the curriculum?

In my experience (BBC live project for instance and going back some years one we used to do with Anglia TV) the partnership has a challenging influence on student's graphic solutions and forces a 'real' deadline, genuine external output for a real platform for the public to view and criticise. It also makes the students feel 'grown up', not just a young person in college under the teacher's supervision but a professional producer giving time to their ideas as if they are a real client. This is not a certified partnership but a regular project, and has led to other things, e.g. NSAD students and staff working on the BBC Blast workshops, all very good experience both at a local community level and in a broader professional sense.

In the past Televirtual gave paid work placements to students when they needed extra people there and several graduates worked there, some for quite a few years at a time. Recently they have lent us some resources and Tim offered to mentor some MA graduates who were setting up their own company.

●In your opinion what defines excellence within the animation industry?

This is a big question (and I actually need a year to answer it) at one end the answer is....

GREAT feature films, these are usually the product of several countries working together as very little is made now with huge budgets unless there is international co-operation across the board. So an example could be *Belleville Rendezvous*, combining traditional and new digital skills but based on great caricature and a surprising story. As with most films the DIRECTOR's vision is absolute, his control of the whole process and picking the right animators for the characters has actually allowed quite a lot of personal interpretation from those artists (look at the difference between the way the dog is drawn and the triplets for instance) but within his guidelines. This is an example of a studio system that Skillset may applaud quite rightly as showing the best of traditional animation practice.

Staying with the feature films, animated special effects such as those produced by WETA for the Lord of the Rings cycle, innovation on a grand scale, the creation of Gollum the virtual/real

character, FANTASTIC, small creative teams working closely with the uncompromising director to test and develop a whole new artform.

Smaller films, the animated short, often used to bring in commissions for commercials for animation companies. A recent example would be 'The Pearce Sisters' sponsored by Aardman, an unconventional story and an innovative visual technique created especially for the film. But there are many I could cite....

The half hour TV special film commission, e.g. Peter and the Wolf, by Suzie Templeton, where a talented animator is given a chance to develop and make an extended short film, in this case creating an intelligent, lyrical and modern take on a traditional story using traditional stop motion puppetry.

Commercials are often at the sharp end of new animation, Sony Bravia play-doh for instance, but they can also celebrate traditional animaton skills such as Olay 'Lines' where the beauty of the drawn line is mesmerising.

Music Videos... I hardly know where to start there are SO many and they are SO varied, this is possibly the richest area for innovative practice, maybe because the animator is not tied to traditional narratives that can constrict image-making boundaries.

TV Promotions, from the beauty of animated logos (current BBC and Channel 4 in particular) to programme trailers, we expect a very high aesthetic across the board and get it.

Innovative comedy, Monkey Dust, 2D TV, (can't remember the title of the one about laboratory animals "I am not an animal' ??) but all satirical, great scripts and characters, and In the case of Monkey Dust, 6 small companies taking on separate sketches with the cityscape as the link, a mix of styles but held together by the soundscape/musical environment as well as the narrative structures.

Children's TV, Charlie and Lola, Shaun the Sheep, Zoo Lane..... and many more. Inventive, quintessentially British Animation, not patronising or overtly moralising to children, involves an acceptable level of teaching and learning for the very young, entertaining and beautifully crafted. Smashing! Studio system again and some outputting to overseas (cheaper) skill input. (I was never a fan of Bob the Builder so the movement of this from UK stop frame to Indian CGI doesn't worry me except for the employment of the UK animators being terminated....)

I don't really play computer games (but I used to) so can't comment on this area with any current expertise, but I am totally impressed by the responsive technology and the level of visual detail and fluid movement across the board. I learned a lot about the Sony team style for games creation (from Lloyd) and this seems very inclusive, good creative practice allowing all members to discuss their approaches to the project on a regular basis but with ambitious deadlines all along the way.

To the other end...

The tiniest little animations on the web, e.g. www.eatpes.com

He may have started by turning some old buttons into fireworks through primitive stop motion techniques, but ends up doing commercials for Orange. I know this is America not in the UK but that is the web, doesn't matter where you live, the world wants good ideas and the web gives everyone a chance to show them.

So what defines animation excellence.... The convincing communication of great ideas to a targeted audience through the medium of an appropriate sequential or interactive aesthetic, often combining 'traditional' and 'new' animation skills in search of the perfect communication vehicle for the intended narrative, emotional or musical message.

Hmmmm, much chin stroking to be done!!!

STEVE HUNT

(Senior Lecturer in Digital Animation, University of Hertfordshire)

03/03/08

We are a CG course with lots of industry experience among teaching staff.

- Is there a need to maintain a stable definition of animation in academia?

No! why? We are providing a service to the industry; we are producing graduates who have consolidated a degree skillset

Much wider than their subject skillset i.e. degree skills including analysing, synthesizing, contextualizing, creativity, group working etc, for many a coming of age and a life experience, but the possibility of employment within the sector is very important and something to hang all the rest on. If a stable definition damages the above then why have one?

- Do you think the definition of animation has any influence on curriculum development?

No, we are working in the real world and have feedback from both students and industry as to needs. I worked within the industry for many years and am used to constant remapping of criteria, its part of the sector. Curriculum is constantly re-evaluated.

- How much do technical developments effect the definition of animation and the breadth of the curriculum?

Absolutely, symbiotic relationship between ways of thinking and tool used both creatively and within craft mentality. In 3D (my area, within 3 years z-brush has revolutionised the creative pipeline. No longer is modeling in CG an arduous activity dependant on edge loops but now is freely sculpted like clay – new skill set needed i.e. similar to clay sculpture. The quality bar especially in games has upped. But the development of z-brush came from a demand, and the possibility within computing developments. That is just one example of many.

- What influence do vocational Partnerships have on the structure and definition of the curriculum?

Do you mean links to industry? Yes, partnerships seems to imply an equal relationship. Useful, important but education is a strange beast, and little wary of easy solutions proposed by industry. Educating a 19yr old is a strange business. Industry wants to maximise profits, we are educating for the long term. But there is a very important link.

- In your opinion what defines excellence within the animation industry?

Creativity, client satisfaction, sensibility and design sense, aesthetics, intelligence. Adding something to the world that enhances people's lives.

ADAM MINNS

(Head of Policy; Children and Animation Policy, PACT)

01/04/08

My Questions to PACT

- What are PACT's views on how animation is currently defined in relation to data collection? (I am aware of PACT's definition of animation in Mouse or Superhero, 2002, p.7)

AM: Can't define animation.

JW: Yes, I understand that but there does need to be some parameters in order that animation doesn't become too narrow or too broad either when defining policy. PACT have made clear what they mean by animation but, how does this fit with other data collection models for comparison when using data or evidence to back-up findings?

See next question

- Children's and Animation policy is now placed together, does this include all areas of animation?

AM: Yes, for PACT it includes broadcast, film and some online content; this for both adult and children

- What extra input or information in relation to animation sector intelligence do you think the Animation industry development might benefit from?

AM: More information by subsector, how animation inputs to film or broadcast, as it is part of many other sectors what proportion of those sectors does it make up- inputs and outputs detailed.

- Who are the major policy makers in terms of the animation industry in the UK/ who for PACT defines policy relating to industry? (E.g. Government bodies such as DCMS, UK Trade and Investment, the UK industry, education...)

AM: List of Government bodies, particularly OFCOM for PACT, as well as DCMS, Department for Innovation Universities and Skills (DIUS) and BERR the Department for Business, Enterprise and Regulatory Reform and the treasury.

JW: Talked about the issues associated with the definitions that these bodies have

- What are the defining papers/ research that for PACT have had the most effect on the animation industry-with regard to the development, conservation and breadth of understanding?

AM: OFCOMS paper- Public Service Broadcasting for Children. This is what is effecting most of PACTs members at the moment. Intervention by the government in the service and range of children's television available on public service broadcast programming:

14. The production sector has already suffered this 80% drop in investment. Crucially, this meant that other than the relatively small number of

commissions from cable and satellite broadcasters, the BBC was left with a monopoly on commissioning programmes outside the pre-school genre.

15. The children's production sector includes some of the biggest businesses in the independent sector, but the vast majority are small, specialist companies. A striking finding of Pact's 2007 Independent Production Census was that more than 20% of all companies with turnovers of under £1m specialised in children's programming. Unusually for the main television genres, very few larger companies registered any children's production activity.¹² This may be due to the specialist nature of children's and animation production, which by definition entails making programmes for a particular audience.

12 2007 Independent Production Census, Pact, chart: production activity by turnover band, page 32.

(PACT, Dec 2007, p.9)

10. However, we regard UK-made animation as at risk alongside drama and factual, and our concerns are supported by Ofcom's data in the children's review. According to the regulator, investment in UK-made animation has dropped by more than 60% since 2001, the most steeply out of all the genres.²¹

11. Animation for older children has been amongst the genres hardest hit by ITV's withdrawal has also damaged the range of high quality UK animation for older children, such as Grizzly Tales for Gruesome Kids, Aardman Animations' Planet Sketch and King Arthur's Disasters, which offered a popular indigenous alternative to imported animation and regularly recorded an audience share of more than 20%.

12. It is true that animation is able to raise financing for production costs from overseas sources, but UK animators must still be able to bring a certain level of the budget to the financing package in order to be in a position to piece the rest of the funding together. Without a broadcast licence in a show's home market, few potential overseas co-producers are willing to take a risk of investing in a production. In terms of animation for older children outside pre-school, it is usually impossible to raise financing through any merchandising sales, regardless of whether a programme has a broadcast licence in its domestic market.

13. In Ofcom's consumer research, we understand that parents were concerned that there are "too many cartoons" on television. We assume however that parents are referring to imports and repeats, not much-loved UK-made animation such as Shaun The Sheep, The Snowman or Angelina Ballerina. While there may be a high level of imported animation on UK television screens, the level of UK-made shows is far lower. Cartoons make up 67% of all children's programming on commercial channels, but they represent just 27% of children's shows on PSB channels, the main source of UK programming.

14. We would also point out parents responding to Ofcom's research did value animation. The report states that parents considered that: "Animation

provided valuable relaxation and light hearted viewing that fuelled children's imagination."

22 The Future of Children's Television Programming: Research Report, Ofcom, page 130.

21 Investment in 2001 in first-run animation was £18m, compared to £7m in 2006 – The Future of

Children's Television Programming: Research Report, Ofcom, page 62, figure 47.

Tax based credits for childrens TV will this solve the problem of the shortfall of animation industry and production in the UK?

Is this just one aspect of the animation industry?

As quoted above most companies are small and specialised, with only a few larger companies registering any children's productions and from the list of members below this seems to be one of many genres produced by these companies.

• How are the PACT Members of Children's and Animation Policy Group selected?

AM: Our policy is developed with input from a wide cross section of companies through different policy groups comprising of members. The policy groups work strategically across a wide range of issues, spanning Nations & regions, film, TV, exports, diversity, and digital media. They all feed into Pact's elected council of member representatives, to ensure that our policy is coordinated while reflecting the diversity of our members.

Policy Groups:

TV

Children's and Animation

Diversity

Exports

Film

Interactive

Nations and Regions

One elected council member who has the power to hire and fire the sub group which is made up of PACT members tend to be voluntary. Non intentional but have a good mix of nations and regions and centers of excellence representation.

- Mike Watts (Chair) (Novel Entertainment), Oxford C
- Anne Brogan (Kendle)
- Miles Bullough (Aardman Animation), Bristol
- Kate Canning (Canning Factory), London C
- Mario Cavalli (Colony Media), London MM
- Tony Collingwood (Crownstreet), (Collingwood O'Hare) London C
- Marion Edwards (Red and Blue Productions), London (All genres)
- Mick Foley (Sumo-Dojo), London one-stop provider of digital media production and animation services across all platforms.
- Iain Harvey (Illuminated Films), London, C and other genres
- Amelia Johnson (Prism), London, TV and digital content provider specialising in kids, youth and young adult.
- Richard Langridge (Rialto Films),

- Robin Lyons (Calon), Cardiff Wales C
- Lee Marriott (Cosgrove Hall), Manchester C
- Nahrein Mirza (Little Bird) London F and TV (Children's silent comedy series)
- Billy MacQueen (Darrall MacQueen), London, specialise in producing entertainment brands for children and teens that integrate across TV, Web, Mobile and eTV
- Jonathan Peel (Millimages UK) London, C
- Nigel Pickard (RDF Media), London, C genre content distributor +
- Christopher Pilkington (Initial), Children's and teen content creator and producer +
- Julian Scott (Coolabi), London specialises in the ownership, development, creative management and exploitation of high quality children's and family intellectual property assets.

PETER PARR

(Course Leader BA (Hons) Animation, Arts Institute Bournemouth)

02/03/08

- Is there a need to maintain a stable definition of animation in academia?

There is for the purposes of governmental classification a need to identify a stable definition. Ask how is Fine Art classified? What is it that identifies the diversities of this term that allows it to be more acceptable to government than the equally diverse discipline of animation? There should be no need to change the term animation as the word describes our art and industry perfectly. There is a need however, to educate and broaden the vision of our clerks.

- Do you think the definition of animation has any influence on curriculum development?

The definition of animation in curriculum development is important. It is the design of the course content and the vision of the teaching team that will define the breadth of the curriculum. This gives an applicant a wider choice. Universities should be clear in their definitions given out in prospectus data to inform this choice with clarity. However, some universities continue to deceive applicants in order to make themselves more fashionably attractive and appealing by including animation as an additional option i.e. illustration/animation or graphics/animation. In some case it might as well be dog walking /animation! Those institutions blur and confuse any definition. What are they really offering? Applicants beware. Do your research.

- How much do technical developments effect the definition of animation and the breadth of the curriculum?

If providers have a clear vision of their own definition then there is no problem. Advances in technology have a profound impact on the breadth of a course but this should be fused into the existing offer. The offer can be expanded but it would be foolhardy to change the definition to suit the new furniture. Universities offering animation should celebrate their differences and support each other in their offers allowing the applicants the benefit of choice.

- What influence do vocational Partnerships have on the structure and definition of the curriculum?

This depends on the mission of the course team. Partnerships are very important to some courses and less so to others. A balance has to be struck between the pragmatism of industry needs and the all too precious student experience where creative freedom and development must come before industry demands. Vocational Partnerships should have no influence on the definition of the curriculum. Industry should not be allowed to dictate the terms under which students are awarded their degrees.

- In your opinion what defines excellence within the animation industry?

Excellence within the animation industry should be defined as being innovative, reliable, honest, and respectful and having a strong commitment to a high quality outcome.

SAINT JOHN WALKER

(Computer Games and Visual Effects Senior Lecturer, Anglia Ruskin University, Cambridge)

18/03/08

Education Themes and Questions relating to the definition of animation:

- Is there a need to maintain a stable definition of animation in academia?

Absolutely not. There is no 'stable definition' of any art form! Ossification is the result. I think you are alluding to whether a 'consensual' definition is needed (or, currently lacking) in order to promote animation further. I don't see how it would help anyone, and think it's a reductionist tactic, mistakenly to appease those who wish to 'measure' animation in it's totality.

- Do you think the definition of animation has any influence on curriculum development?

Different institutions see Animation from different perspectives; through different prisms. No-one tries to encompass an inclusive definition. Can you imagine the RCA insisting on students creating dynamic web banners or procedural AI? Or Teeside insisting students do Sand and Ink abstracts?

Animation is an abstracted element like Composition. As such one might imagine some courses teaching euclidean geometry, others teaching cubist representations, and yet all named 'Composition'.

- How much do technical developments effect the definition of animation and the breadth of the curriculum?

They are implicitly linked, but the same goes for any creative form. Keyframing and 3D are becoming dominant modes of representation purely because of the ubiquitous technologies we use. But remember, before Fleischer 'straight-ahead' animation was the dominant form. It wasn't JUST technology that changed that- it was the need for division of labour in the capitalist structure that brought in drawn keyframes! I think there's a more subtle relationship at work.

- What influence do vocational Partnerships have on the structure and definition of the curriculum?

Do you mean the curricula I'm involved in, or generally? And do you mean ANY Industry/Education partnership? I feel at least 4 answers appropriate here, depending on your question....

- In your opinion what defines excellence within the animation industry?

Since I think there is no such industry, this makes no sense.

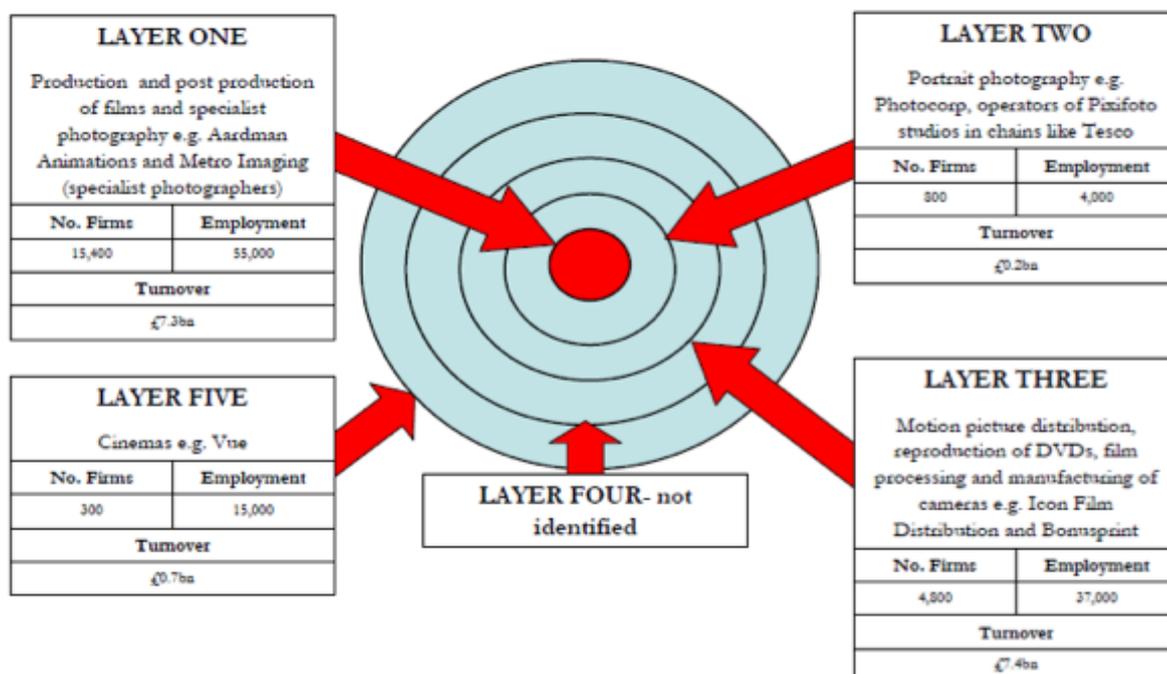
If you are in Games, CGI, Advertising, Visualisation, Simulation, TV, Film, you would have different criteria and benchmarks.

One can be general, and mention that a main driver of animation is Novelty. But that goes for many visual arts.

Chapter 3

Appendix 3.1

The Film, Video and Photography supply chain



85 Frontier Economics

Film, Video and Photography activities

Layer	SIC code	Description
Layer 1	74.81/3	Specialist photography (e.g. underwater)
	74.81/9	Photos for commercials, fashion, tourism etc.
	92.11/1	Producing films, cartoons and documentaries
	92.11/9	Dubbing, editing, post production etc.
Layer 2	74.81/2	Portrait photos (mainly passport photo companies, although doesn't include photo machines)
Layer 3	92.12	Motion picture distribution
	74.81/4	Film processing
	52.48/2	Retail sale of cameras but also office equipment
	51.47/6	Wholesale of photographic goods
	33.40/3	Manufacture of cameras, projectors etc.
	24.65	Manufacture of unrecorded media (also includes unrecorded media for computers)
	24.64	Manufacture of photographic chemicals
	22.32	Reproduction of DVD's and tapes
Layer 5	92.13	Cinemas

SIC codes in red are those previously used by DCMS to identify the Creative Industries.

155 Frontier Economics

(Frontier Economics, 2006, p.85 and p. 155)

Appendix 3.2

Skillsset Employment Census

http://www.skillset.org/uploads/pdf/asset_14487.pdf?5

Appendix 3.3

Sector	Paper	Online	Total
TELEVISION			
Terrestrial Broadcast	0	7	7
Cable and Satellite	3	3	6
Independent Production	77	40	147
RADIO			
Broadcast Radio	17	60	77
Community Radio	7	2	9
Independent Production	3	2	5
FACILITIES			
Post Production	40	39	79
Studio and Equipment Hire	38	14	52
Outside Broadcast	6	3	9
VFX			
Special Physical Effects	2	6	8
Manufacture of AV Equipment	5	0	5
Processing Labs	1	0	1
Other Services for Film and TV	67	39	106
FILM			
Production	44	23	67
Distribution	1	6	7
Exhibition	75	1	76
ANIMATION	25	25	50
COMMERCIALS AND POP PROMOS	6	9	15
CORPORATE PRODUCTION	43	36	79
INTERACTIVE MEDIA			
Online Content	26	77	103
Mobile Content	1	1	2
Offline Multimedia	11	6	17
Other Interactive Media	9	11	20
COMPUTER GAMES			
Development	8	19	27
Publishing	1	2	3
Development Support	2	3	5
ARCHIVES AND LIBRARIES	13	5	19
TOTAL	534	475	1,010

(Skillset, 2009, p7-8)

Appendix 3.3a

Segment	Industry classifications	Occupation classifications
Advertising and Marketing	8380 Advertising	123 Advertising and public relations manager
		381 Artists, commercial artists, graphic designers
Architecture, Design & Visual Arts	4910 Jewellery and coins	382 Industrial designers
		260 Architects
		310 Draughtspersons
		216 Design and development engineers
		303 Architectural and town planning technicians
		590 Glass product and ceramic makers
		591 Glass product and ceramic finishers and decorators
		518 Goldsmiths, silversmiths, precious stone workers
		383 Clothing designers
		Film, TV, Radio and Photography
9741 Radio and television services, theatres, etc.	525 Radio, TV and video engineers	
Music & Performing Arts	3452 Gramophone records and pre-recorded tapes	176 Entertainment and sports managers
	9760 Authors, music composers and other own account artists not elsewhere specified	384 Actors, entertainers, stage managers, producers and directors
		385 Musicians
Publishing	4751 Printing and publishing of newspapers	380 Authors, writers, journalists
	4752 Printing and publishing of periodicals	270 Information officers and technical librarians
	4753 Printing and publishing of books	271 Archivists and curators
	9770 Libraries, museums, art galleries, etc.	
Software, Computer Games & Electronic Publishing	8394 Computer services	214 Computer analyst/programmers

(Cunningham, Higgs and Bakhshi, February 2008, p. 37)

Please see USB stick for the following Excel Appendices:

Appendix 3.4

Skillset OFM June 2009 _Mapped onto SOC for Jodie.xls

Appendix 3.5

Sub-sector consultation - animation 21.05.09

Chapter 4

Please see USB stick for the following Excel Appendices:

Appendix 4.1

PN00509R_Animation_firms_UK_WTS1.xls

Appendix 4.2

PN00509R_Animation_firms_UK_WTS1_v2.xls

Appendix 4.3

Examples of Games design producers to find out how they classify themselves.

The word 'producers' is very important in the search, as is Games Design because this is where many animators find employment particularly in a full time permanent position. Whereas many animation companies that produce for film, TV or advertising will employ staff on short term contracts or as freelancers.

Interesting /rest of UK egs:

Blitz Games
Codemonkeys
Codemasters studios
Flashblade 3D animation studio
Hothouse Creations Ltd
Lionhead Studios
Realtime worlds
Rebellion
Rockstar Leeds
Ubisoft UK

East of England:

Frontier developments Ltd
Harmonix
Ninja Theory
Game Ware Development

Appendix 4.4 UK SIC 2007

Section J

58

58.1

58.11

58.12

58.13

Information and Communication

Publishing activities

Publishing of books, periodicals and other publishing activities

Book publishing

Publishing of directories and mailing lists

Publishing of newspapers

44

Division	Group	Class and Subclass	Description
		58.14	Publishing of journals and periodicals
		58.14/1	Publishing of learned journals
		58.14/2	Publishing of consumer, business and professional journals and periodicals
		58.19	Other publishing activities
	58.2		Software publishing
		58.21	Publishing of computer games
		58.29	Other software publishing
59			Motion picture, video and television programme production, sound recording and music publishing activities
	59.1		Motion picture, video and television programme activities
		59.11	Motion picture, video and television programme production activities
		59.11/1	Motion picture production activities
		59.11/2	Video production activities
		59.11/3	Television programme production activities
		59.12	Motion picture, video and television programme post-production activities
		59.13	Motion picture, video and television programme distribution activities
		59.13/1	Motion picture distribution activities
		59.13/2	Video distribution activities
		59.13/3	Television programme distribution activities
		59.14	Motion picture projection activities
	59.2		Sound recording and music publishing activities
		59.20	Sound recording and music publishing activities
60			Programming and broadcasting activities
	60.1		Radio broadcasting
		60.10	Radio broadcasting
	60.2		Television programming and broadcasting activities
		60.20	Television programming and broadcasting activities
61			Telecommunications
	61.1		Wired telecommunications activities
		61.10	Wired telecommunications activities
	61.2		Wireless telecommunications activities
		61.20	Wireless telecommunications activities
	61.3		Satellite telecommunications activities
		61.30	Satellite telecommunications activities
	61.9		Other telecommunications activities
		61.90	Other telecommunications activities
62			Computer programming, consultancy and related activities
	62.0		Computer programming, consultancy and related activities
		62.01	Computer programming activities
		62.01/1	Ready-made interactive leisure and entertainment software development
		62.01/2	Business and domestic software development
		62.02	Computer consultancy activities
		62.03	Computer facilities management activities
		62.09	Other information technology and computer service activities

J

Division	Group	Class and Subclass	Description
63			Information service activities
	63.1		Data processing, hosting and related activities; web portals
		63.11	Data processing, hosting and related activities
		63.12	Web portals
	63.9		Other information service activities
		63.91	News agency activities
		63.99	Other information service activities n.e.c.

(UK standard Industrial Classification of Economic Activities 2007-SIC, 2009. P. 44-46)

Appendix 4.5 UK SIC Detail

Section J Information and Communication

This section includes the production and distribution of information and cultural products, the provision of the means to transmit or distribute these products, as well as data or communications, information technology activities and the processing of data and other information service activities.

The main components of this section are publishing activities (division 58), including software publishing, motion picture and sound recording activities (division 59), radio and TV broadcasting and programming activities (division 60), telecommunications activities (division 61), information technology activities (division 62) and other information service activities (division 63).

Publishing includes the acquisition of copyrights for content (information products) and making this content available to the general public by engaging in (or arranging for) the reproduction and distribution of this content in various forms. All the feasible forms of publishing (in print, electronic or audio form, on the internet, as multimedia products such as CD-ROM reference books etc.) are included in this section.

Activities related to production and distribution of TV programming span divisions 59, 60 and 61, reflecting different stages in this process. Individual components, such as movies, television series etc. are produced by activities in division 59, while the creation of a complete television channel programme, from components produced in division 59 or other components (such as live news programming) is included in division 60. Division 60 also includes the broadcasting of this programme by the producer. The distribution of the complete television programme by third parties, i.e. without any alteration of the content, is included in division 61. This distribution in division 61 can be done through broadcasting, satellite or cable systems.

58 Publishing activities

This division includes the publishing of books, brochures, leaflets, dictionaries, encyclopaedias, atlases, maps and charts; publishing of newspapers, journals and periodicals; directory and mailing list and other publishing, as well as software publishing.

Publishing includes the acquisition of copyrights to content (information products) and making this content available to the general public by engaging in (or arranging for) the reproduction and distribution of this content in various forms. All the feasible forms of publishing (in print, electronic or audio form, on the internet, as multimedia products such as CD-ROM reference books etc.), except publishing of motion pictures, are included in this division.

This division excludes the publishing of motion pictures, video tapes and movies on DVD or similar media (division 59) and the production of master copies for records or audio material (division 59). Also excluded is printing (see 18.11, 18.12) and the mass reproduction of recorded media (see 18.20).

58.1 Publishing of books, periodicals and other publishing activities

This group includes activities of publishing books, newspapers, magazines and other periodicals, directories and mailing lists, and other works such as photos, engravings, postcards, timetables, forms, posters and reproductions of works of art. These works are characterised by the intellectual creativity required in their development and are usually protected by copyright.

58.11 Book publishing

This class includes the activities of publishing of books in print, electronic (CD, electronic displays etc.) or audio form or on the Internet.

Included are:

- publishing of books, brochures, leaflets and similar publications, including publishing of dictionaries and encyclopaedias
- publishing of atlases, maps and charts
- publishing of audio books
- publishing of encyclopaedias etc. on CD-ROM

This class excludes:

- production of globes, see 32.99
- publishing of advertising material, see 58.19
- publishing of music and sheet books, see 59.20
- activities of independent authors, see 90.03

58.12 Publishing of directories and mailing lists

This class includes the publishing of lists of facts/information (databases) that are protected in their form, but not in their content. These lists can be published in printed or electronic form.

This class includes:

- publishing of mailing lists
- publishing of telephone books
- publishing of other directories and compilations, such as case law, pharmaceutical compendia etc.

J

58.13 Publishing of newspapers

This class includes the publishing of newspapers, including advertising newspapers, appearing at least four times a week. Publishing can be in print or electronic form, including on the Internet.

This class excludes:

- news agency activities, see 63.91

58.14 Publishing of journals and periodicals**58.14/1 Publishing of learned journals**

This subclass includes the activities of publishing journals reporting or discussing the results of scholarly research and intended for an academic and research-based readership; they are normally peer-reviewed and the primary source of revenue is not the sale of advertisement space, but subscription. They appear less than four times a week and can be published in print or electronic form, including on the Internet.

58.14/2 Publishing of consumer, business and professional journals and periodicals

This subclass includes the activities of publishing journals and periodicals providing entertainment or lifestyle information to individuals, information within businesses or across the business community or information for trades or professions. It also includes customer magazines produced for businesses and distributed free, newsletters and the publishing of radio and television schedules. These publications appear less than four times a week and can be published in print or electronic form, including on the Internet.

J**58.19 Other publishing activities**

This class includes:

- publishing (including on-line) of:
 - catalogues
 - photos, engravings and postcards
 - greeting cards
 - forms
 - posters, reproduction of works of art
 - advertising material
 - other printed matter
- on-line publishing of statistics and other information

This class excludes:

- publishing of advertising newspapers, see 58.13
- on-line provision of software (application hosting and application service provisioning), see 63.11

58.2 Software publishing**58.21 Publishing of computer games**

This class includes:

- publishing of computer games for all platforms

58.29 Other software publishing

This class includes:

- publishing of ready-made (non-customised) software, including translation or adaptation of non-customised software for a particular market on own account:
 - operating systems
 - business and other applications

This class excludes:

- reproduction of software, see 18.20
- retail sale of non-customised software, see 47.41
- production of software not associated with publishing, including translation or adaptation of non-customised software for a particular market on a fee or contract basis, see 62.01
- on-line provision of software (application hosting and application service provisioning), see 63.11

59 Motion picture, video and television programme production, sound recording and music publishing activities

This division includes production of theatrical and non-theatrical motion pictures whether on film, video tape or disc for direct projection in theatres or for broadcasting on television; supporting activities such as film editing, cutting, dubbing etc.; distribution of motion pictures and other film productions to other industries; as well as motion picture or other film productions projection. Buying and selling of motion picture or other film productions distribution rights is also included.

This division also includes sound recording activities, i.e. production of original sound master recordings, releasing, promoting and distributing them, publishing of music as well as sound recording service activities in a studio or elsewhere.

59.1 Motion picture, video and television programme activities

This group includes production of theatrical and non-theatrical motion pictures whether on film, video tape, DVD or other media, including digital distribution, for direct projection in theatres or for broadcasting on television; supporting activities such as film editing, cutting, dubbing etc.; distribution of motion pictures or other film productions (video tapes, DVDs, etc) to other industries; as well as their projection. Buying and selling of motion picture or any other film production distribution rights is also included.

59.11 Motion picture, video and television programme production activities

59.11/1 Motion picture production activities

This subclass includes:

- production of motion pictures

This subclass excludes:

- film duplicating (except reproduction of motion picture film for theatrical distribution) from master copies, see 18.20
- post-production activities, see 59.12
- sound recording and recording of books on tape, see 59.20
- film processing other than for the motion picture industry, see 74.20
- activities of personal theatrical or artistic agents or agencies, see 74.90
- activities of own account actors, cartoonists, directors, stage designers and technical specialists, see 90.0

59.11/2 Video production activities

This subclass includes:

- production of videos

This subclass excludes:

- audio and video tape, CD or DVD reproduction from master copies, see 18.20
- wholesale of recorded video tapes, CD-s, DVD-s, see 46.43
- wholesale of blank video tapes, CD-s, see 46.52
- retail trade of video tapes, CD-s, DVD-s, see 47.63
- renting of video tapes, DVD-s to the general public, see 77.22
- post-production activities, see 59.12
- sound recording and recording of books on tape, see 59.20
- activities of personal theatrical or artistic agents or agencies, see 74.90
- activities of own account actors, cartoonists, directors, stage designers and technical specialists, see 90.0

59.11/3 Television programme production activities

This subclass includes:

- production of television programmes (television series, documentaries etc.), or television advertisements

This subclass excludes:

- post-production activities, see 59.12
- sound recording and recording of books on tape, see 59.20
- television broadcasting, see 60.2
- creating a complete television channel programme, see 60.2
- activities of personal theatrical or artistic agents or agencies, see 74.90
- activities of own account actors, cartoonists, directors, stage designers and technical specialists, see 90.0
- real-time (i.e. simultaneous) closed captioning of live television performances of meetings, conferences, etc., see 82.99

59.12 Motion picture, video and television programme post-production activities

This class includes post-production activities such as editing, film/tape transfers, titling, subtitling, credits, closed captioning, computer-produced graphics, animation and special effects, developing and processing motion picture film, as well as activities of motion picture film laboratories and activities of special laboratories for animated films.

This class also includes:

- the activities of stock footage film libraries, etc.

This class excludes:

- film duplicating (except reproduction of motion picture film for theatrical distribution) as well as audio and video tape, CD or DVD reproduction from master copies, see 18.20

J

- wholesale of recorded video tapes, CD-s, DVD-s, see 46.43
- wholesale of blank video tapes, CD-s, see 46.52
- retail trade of video tapes, CD-s, DVD-s, see 47.63
- film processing other than for the motion picture industry, see 74.20
- renting of video tapes, DVD-s to the general public, see 77.22
- activities of own account actors, cartoonists, directors, stage designers and technical specialists, see 90.0

59.13 Motion picture, video and television programme distribution activities**59.13/1 Motion picture distribution activities**

This subclass includes:

- distributing film to motion picture theatres, television networks and stations, and exhibitors.

This subclass also includes:

- acquiring film distribution rights

This subclass excludes:

- film duplicating from master copies, see 18.20

J**59.13/2 Video distribution activities**

This subclass includes:

- distributing video tapes, DVD-s and similar productions to motion picture theatres, television networks and stations, and exhibitors

This subclass also includes:

- acquiring video tape and DVD distribution rights

This subclass excludes:

- audio and video tape, CD or DVD reproduction from master copies, see 18.20
- wholesale of recorded video tapes and DVDs, see 46.43
- retail sale of recorded video tapes and DVDs, see 47.63

59.13/3 Television programme distribution activities

This subclass includes:

- distributing television programmes to television networks and stations, and exhibitors

This subclass also includes:

- acquiring television distribution rights

59.14 Motion picture projection activities

This class includes:

- activities of motion picture or video tape projection in cinemas, in the open air or in other projection facilities
- activities of cine-clubs

59.2 Sound recording and music publishing activities**59.20 Sound recording and music publishing activities**

This class includes the activities of production of original (sound) master recordings, such as tapes, CDs; releasing, promoting and distributing sound recordings to wholesalers, retailers or directly to the public. These activities might be integrated or not with the production of master recordings in the same unit. If not, the unit exercising these activities has to obtain the reproduction and distribution rights to master recordings. This class also includes sound recording service activities in a studio or elsewhere, including the production of taped (i.e. non-live) radio programming.

This class also includes the activities of music publishing, i.e. activities of acquiring and registering copyrights for musical compositions, promoting, authorising and using these compositions in recordings, radio, television, motion pictures, live performances, print and other media. Units engaged in these activities may own the copyright or act as administrator of the music copyrights on behalf of the copyright owners. Publishing of music and sheet books is included here.

60 Programming and broadcasting activities

This division includes the activities of creating content or acquiring the right to distribute content and subsequently broadcasting that content, such as radio, television and data programmes of entertainment, news, talk, and the like. Also included is data broadcasting, typically integrated with radio or TV broadcasting. The broadcasting can be performed using different technologies, over-the-air, via satellite, via a cable network or via Internet.

This division also includes the production of programmes that are typically narrowcast in nature (limited format, such as news, sports, education, and youth-oriented programming) on a subscription or fee basis, to a third party, for subsequent broadcasting to the public.

This division excludes the distribution of cable and other subscription programming (see division 61).

60.1 Radio broadcasting

60.10 Radio broadcasting

This class includes:

- activities of broadcasting audio signals through radio broadcasting studios and facilities for the transmission of aural programming to the public, to affiliates or to subscribers

This class also includes:

- activities of radio networks, i.e. assembling and transmitting aural programming to affiliates or subscribers via over-the-air broadcasts, cable or satellite
- radio broadcasting activities over the Internet (Internet radio stations)
- data broadcasting integrated with radio broadcasting.

This class excludes:

- the production of taped radio programming, see 59.20

60.2 Television programming and broadcasting activities

60.20 Television programming and broadcasting activities

This class includes the activities of creating a complete television channel programme, from purchased programme components (e.g. movies, documentaries etc.), self produced programme components (e.g. local news, live reports) or a combination thereof.

This complete television programme can be either broadcast by the producing unit or produced for transmission by a third party distributor, such as cable companies or satellite television providers.

The programming may be of a general or specialised nature (e.g. limited formats such as news, sports, education or youth oriented programming). This class includes programming that is made freely available to users, as well as programming that is available only on a subscription basis. The programming of video-on-demand channels is also included here.

This class also includes data broadcasting integrated with television broadcasting.

This class excludes:

- the production of television programme elements (movies, documentaries, talk shows, commercials etc.) not associated with broadcasting, see 59.11
- the assembly of a package of channels and distribution of that package, without programming, see division 61

61 Telecommunications

This division includes the activities of providing telecommunications and related service activities, that is transmitting voice, data, text, sound and video. The transmission facilities that carry out these activities may be based on a single technology or a combination of technologies. The common feature of the activities classified in this division is the transmission of content, without being involved in its creation. The breakdown in this division is based on the type of infrastructure operated.

In the case of transmission of television signals this may include the bundling of complete programming channels (produced in division 60) in to programme packages for distribution.

61.1 Wired telecommunications activities

61.10 Wired telecommunications activities

This class includes:

- operating, maintaining or providing access to facilities for the transmission of voice, data, text, sound and video using a wired telecommunications infrastructure, including:
 - operating and maintaining switching and transmission facilities to provide point-to-point communications via landlines, microwave or a combination of landlines and satellite linkups
 - operating of cable distribution systems (e.g. for distribution of data and television signals)
 - furnishing telegraph and other non-vocal communications using own facilities

The transmission facilities that carry out these activities, may be based on a single technology or a combination of technologies.

This class also includes:

- purchasing access and network capacity from owners and operators of networks and providing telecommunications services using this capacity to businesses and households
- provision of Internet access by the operator of the wired infrastructure

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		<i>This class excludes:</i>
		– telecommunications resellers, see 61.90
61.2	Wireless telecommunications activities	
61.20	Wireless telecommunications activities	
		This class includes:
		– operating, maintaining or providing access to facilities for the transmission of voice, data, text, sound, and video using a wireless telecommunications infrastructure
		– maintaining and operating paging as well as cellular and other wireless telecommunications networks
		The transmission facilities provide omni-directional transmission via airwaves and may be based on a single technology or a combination of technologies.
		This class also includes:
		– purchasing access and network capacity from owners and operators of networks and providing wireless telecommunications services (except satellite) using this capacity to businesses and households
		– provision of Internet access by the operator of the wireless infrastructure
		<i>This class excludes:</i>
		– telecommunications resellers, see 61.90
61.3	Satellite telecommunications activities	
61.30	Satellite telecommunications activities	
		This class includes:
		– operating, maintaining or providing access to facilities for the transmission of voice, data, text, sound and video using a satellite telecommunications infrastructure
		– delivery of visual, aural or textual programming received from cable networks, local television stations or radio networks to consumers via direct-to-home satellite systems. (The units classified here do not generally originate programming material.)
		This class also includes:
		– provision of Internet access by the operator of the satellite infrastructure
		<i>This class excludes:</i>
		– telecommunications resellers, see 61.90
61.9	Other telecommunications activities	
61.90	Other telecommunications activities	
		This class includes:
		– provision of specialised telecommunications applications, such as satellite tracking, communications telemetry, and radar station operations
		– operation of satellite terminal stations and associated facilities operationally connected with one or more terrestrial communications systems and capable of transmitting telecommunications to or receiving telecommunications from satellite systems
		– provision of Internet access over networks between the client and the ISP not owned or controlled by the ISP, such as dial-up Internet access etc.
		– provision of telephone and Internet access in facilities open to the public
		– provision of telecommunications services over existing telecom connections:
		■ VOIP (Voice Over Internet Protocol) provision
		– telecommunications resellers (i.e. purchasing and reselling network capacity without providing additional services)
		<i>This class excludes:</i>
		– provision of Internet access by operators of telecommunications infrastructure, see 61.10, 61.20, 61.30
62	Computer programming, consultancy and related activities	
		This division includes the following activities of providing expertise in the field of information technologies: writing, modifying, testing and supporting software; planning and designing computer systems that integrate computer hardware, software and communication technologies; on-site management and operation of clients' computer systems and/or data processing facilities; and other professional and technical computer-related activities.
62.0	Computer programming, consultancy and related activities	
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- 62.01 Computer programming activities**
 This class includes the writing, modifying, testing and supporting of software.
 This class includes:
- designing the structure and content of, and/or writing the computer code necessary to create and implement:
 - systems software (including updates and patches)
 - software applications (including updates and patches)
 - databases
 - web pages
 - customising of software, i.e. modifying and configuring an existing application so that it is functional within the clients' information system environment
- This class excludes:*
- publishing packaged software, see 58.29
 - translation or adaptation of non-customised software for a particular market on own account, see 58.29
 - planning and designing computer systems that integrate computer hardware, software and communication technologies, even though providing software might be an integral part, see 62.02
- 62.01/1 Ready-made interactive leisure and entertainment software development**
 This subclass includes the development, production, supply and documentation of ready-made interactive leisure and entertainment software, such as games software, designed for publication by a different enterprise. A key component part of the software is audiovisual content with which the user interacts. The software can be published across any format, such as games consoles, the internet and mobile phones.
- 62.01/2 Business and domestic software development**
This subclass excludes:
- Ready-made interactive leisure and entertainment software development, see 62.01/1
- 62.02 Computer consultancy activities**
 This class includes the planning and designing of computer systems which integrate computer hardware, software and communication technologies. Services may include related users training.
This class excludes:
- sale of computer hardware or software, see 46.51, 47.41
 - installation of mainframe and similar computers, see 33.20
 - installation (setting-up) of personal computers, see 62.09
 - installation of software, computer disaster recovery, see 62.09
- 62.03 Computer facilities management activities**
 This class includes the provision of on-site management and operation of clients' computer systems and/or data processing facilities, as well as related support services.
- 62.09 Other information technology and computed service activities**
 This class includes other information technology and computer related activities not elsewhere classified, such as:
- computer disaster recovery services
 - installation (setting-up) of personal computers
 - software installation services
- This class excludes:*
- installation of mainframe and similar computers, see 33.20
 - computer programming, see 62.01
 - computer consultancy, see 62.02
 - computer facilities management, see 62.03
 - data processing and hosting, see 63.11
- 63 Information service activities**
 This division includes the activities of web search portals, data processing and hosting activities, as well as other activities that primarily supply information.
- 63.1 Data processing, hosting and related activities; web portals**
 This group includes the provision of infrastructure for hosting, data processing services and related activities, as well as the provision of search facilities and other portals for the Internet.

- 63.11 Data processing, hosting and related activities**
 This class includes:
 – provision of infrastructure for hosting, data processing services and related activities
 – specialised hosting activities such as:
 ■ Web hosting
 ■ streaming services
 ■ application hosting
 – application service provisioning
 – general time-share provision of mainframe facilities to clients
 – data processing activities:
 ■ complete processing of data supplied by clients
 ■ generation of specialised reports from data supplied by clients
 – provision of data entry services

This class excludes:
 – activities where the supplier uses the computers only as a tool are classified according to the nature of the services rendered
- 63.12 Web portals**
 This class includes:
 – the operation of websites that use a search engine to generate and maintain extensive databases of Internet addresses and content in an easily searchable format
 – operation of other websites that act as portals to the Internet, such as media sites providing periodically updated content

This class excludes:
 – publishing of books, newspapers, journals etc. via Internet, see division 58
 – broadcasting via Internet, see division 60
- 63.9 Other information service activities**
 This group includes the activities of news agencies and all other remaining information service activities.

This group excludes:
 – activities of libraries and archives, see 91.01
- 63.91 News agency activities**
 This class includes:
 – news syndicate and news agency activities furnishing news, pictures and features to the media

This class excludes:
 – activities of independent photojournalists, see 74.20
 – activities of independent journalists, see 90.03
- 63.99 Other information service activities n.e.c.**
 This class includes other information service activities not elsewhere classified such as:
 – computer-based telephone information services
 – information search services on a contract or fee basis
 – news clipping services, press clipping services, etc.

This class excludes:
 – activities of call centres, see 82.20

Appendix 4.6 Comparison LFS and Creative Skillset

Table 5 Labour Force Survey and Skillset Creative Media Employment Estimates

LABOUR FORCE SURVEY⁷⁸

⁸⁰ Secondary analysis of unit lists for 2006 feature film productions (80 minutes or longer and minimum budget of £500K.

se stated.

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				als	41,000
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⁸¹ONS (2009) LFS April-June.

⁸² Ibid.

ork in the Creative Media industry at some point and will benefit from the service Skillset provides.

⁸⁴ Ibid.

⁸⁵ Ibid.

⁸⁶ Ibid.

(Creative Skillset, December 2009, p. 36-37)

Appendix 4.7 Creative Skillset 4 digit SIC comparison

Table 1 - Outcome of SIC (group/class) to Creative Industry Map

Creative Media industry	SIC07	Comment on coverage
TELEVISION		
Terrestrial Broadcast - Public	60.20 - Television programming and broadcasting activities	6 TV sectors merged
Terrestrial Broadcast - Commercial	60.20 - Television programming and broadcasting activities	6 TV sectors merged
Cable & Satellite Broadcast	60.20 - Television programming and broadcasting activities	6 TV sectors merged
Independent Production for TV	59.11 - Motion picture, video and television programme production activities	6 film, TV and other content creation sectors merged
Community TV	59.11 - Motion picture, video and television programme production activities	6 film, TV and other content creation sectors merged
TV Distribution	59.13 - Motion picture, vide and television programme distribution activities	Film and TV merged
RADIO		
Broadcast Radio - Public		
Broadcast Radio - Commercial	60.10 - Radio broadcasting;	Production and broadcast sectors are merged
	60.10 - Radio broadcasting;	Production and broadcast sectors are merged
Independent Production (Radio)	60.10 - Radio broadcasting;	Production and broadcast sectors are merged
	59.11 - Motion picture, video and television programme production activities	5 film, TV and other content creation sectors merged
ANIMATION		
INTERACTIVE MEDIA		
	63.12 - Web portals (Data processing , hosting and related activities, web portals)	Cross-contamination with sectors outside of the Creative Media industry that fall in the remit of another SSC.
Web & Internet		
	58.29 - Other software publishing; 62.01 - computer programming activities; 63.11 - Data processing, hosting and related activities	Cross-contamination with sectors outside of the Creative Media industry that fall in the remit of another SSC.
Offline Multimedia		
Interactive TV	59.11 - Motion picture, video and television programme production activities	5 film, TV and other content creation sectors merged
Mobile Content	Unknown	Unknown
COMPUTER GAMES	62.01/1 - Computer programming activities (Ready-made interactive	Cross-contamination with

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	leisure and entertainment software development), 58.21 - Publishing of computer games (Software Publishing)	sectors outside of the Creative Media industry that fall in the remit of another SSC.
OTHER CONTENT CREATION		
Commercials Production	59.11 - Motion picture, video and television programme production activities	5 film, TV and other content creation sectors merged
Corporate Production	59.11 - Motion picture, video and television programme production activities	5 film, TV and other content creation sectors merged
Pop Promos	59.11 - Motion picture, video and television programme production activities	5 film, TV and other content creation sectors merged
FACILITIES		
Post Production	59.12 - Motion picture, video and television programme post-production activities	Almost match - 2 Facilities sectors merged.
Special Physical Effects	59.11 - Motion picture, video and television programme production activities	5 film, TV and other content creation sectors merged
Studio & Equipment Hire	59.11 - Motion picture, video and television programme production activities	5 film, TV and other content creation sectors merged
Outside Broadcast	60.20 - Television programming and broadcasting activities	5 TV sectors merged
Processing Laboratories	59.12 - Motion picture, video and television programme post-production activities	Almost match - 2 Facilities sectors merged.
Transmission	60.20 - Television programming and broadcasting activities 26.70- Manufacture of optical instruments and photographic equipment	5 TV sectors merged Merge of sectors and cross-contamination at 4 digit class with sectors outside of the Creative Media industry that fall in the remit of at least one other SSC.
Manufacture of AV Equipment		
Other Services for Film and Television	59.11 - Motion picture, video and television programme production activities; 60.20 - Television programming and broadcasting activities	5 film, TV and other content creation sectors merged
FILM		
Cinema Exhibition	59.14 - Motion picture projection activities	Match
Film Distribution	59.13 - Motion picture, vide and television programme distribution	5 film, TV and other content

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	activities	creation sectors merged
Film Production	59.11 - Motion picture, video and television programme production activities;	5 film, TV and other content creation sectors merged
PUBLISHING		
Book publishing	58.11 - Book publishing	Match
Newspaper publishing	58.13 - Publishing of newspapers	Match
Journals & periodicals	58.14 - Publishing of journals and periodicals	Match
Other publishing	58.19 - Other publishing activities; 58.12 - Publishing of directories and mailing lists; 63.99 - Other information service activities	Match
News Agencies	63.91 - News agency activities	Match
PHOTO IMAGING		
Photography	74.20 - Photogenic activities	3 photo imaging sectors merged
Picture libraries and agencies	74.20 - Photogenic activities	3 photo imaging sectors merged
FASHION AND TEXTILES		
	13.10/0 - Preparation and spinning of textile fibres	Assessment to be made
	13.20/0 - Weaving of textiles	Assessment to be made
	13.30/0 - Finishing of textiles	Assessment to be made
	13.91/0 - Manufacture of knitted and crocheted fabrics	Assessment to be made
	13.92/2 - Manufacture of canvas goods, sacks, etc.	Assessment to be made
	13.92/3 - Manufacture of household textiles	Assessment to be made
	13.93/1 - Manufacture of woven or tufted carpets and rugs	Assessment to be made
	13.93/9 - Manufacture of other carpets and rugs	Assessment to be made
	13.94/0 - Manufacture of cordage, rope, twine and netting	Assessment to be made
	13.95/0 - Manufacture of non-wovens and articles made from non-wovens, except apparel	Assessment to be made
	13.96/0 - Manufacture of other technical and industrial textiles	Assessment to be made
	13.99/0 - Manufacture of other textiles n.e.c.	Assessment to be made
	14.11/0 - Manufacture of leather clothes	Assessment to be made
	14.12/0 - Manufacture of workwear	Assessment to be made
	14.13/1 - Manufacture of other men's outerwear	Assessment to be made
	14.13/2 - Manufacture of other women's outerwear	Assessment to be made
	14.14/1 - Manufacture of men's underwear	Assessment to be made
	14.14/2 - Manufacture of women's underwear	Assessment to be made
	14.19/0 - Manufacture of other wearing apparel and accessories	Assessment to be made

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	n.e.c.	
	14.20/0 - Manufacture of articles of fur	Assessment to be made
	14.31/0 - Manufacture of knitted and crocheted hosiery	Assessment to be made
	14.39/0 - Manufacture of other knitted and crocheted apparel	Assessment to be made
	15.11/0 - Tanning and dressing of leather, dressing and dyeing of fur	Assessment to be made
	15.12/0 - Manufacture of luggage, handbags and the like, saddlery and harness	Assessment to be made
	15.20/0 - Manufacture of footwear	Assessment to be made
	20.60/0 - Manufacture of man-made fibres	Assessment to be made
	46.16 Agents involved in the sale of textiles, clothing fur, footwear and leather goods	Assessment to be made
	46.24 Wholesale of hides, skins and leather	Assessment to be made
	46.41 Wholesale of textiles	Assessment to be made
	46.42 Wholesale of clothing and footwear	Assessment to be made
	95.23 - Repair of footwear and leather goods	Assessment to be made
	96.01 - Washing and (dry-)cleaning of textile and fur products	Assessment to be made
ADVERTISING	73.10 - Advertising	Assessment to be made

(Creative Skillset, December 2009, p. 22-23)

**Appendix 4.8
E-Skills UK SIC**

C1 Standard Industrial Classification codes

The following tables show relevant codes from SIC 2003 and from SIC 2007, as the report refers to data sources using both.

SIC 2003

Sector / Sub-sector		SIC 2003	SIC description	SSC
TECHNOLOGY				
Other IT & Telecoms	Software (including software services, games & e-publishing)	72.20	Software consultancy & supply	e-skills UK
		72.21	Publishing of software	
		72.22	Other software consultancy & supply	
		72.30	Data processing	
		72.40	Database activities	
		22.33	Reproduction of Computer Media	
	Other IT	72.10	Hardware consultancy	
		72.50	Maintenance and repair of office, accounting and computing machinery	
		72.60	Other computer related activities	
	Telecoms	64.2	Telecommunications	
	Consultancy	70.22/9*	Management consultancy activities*	
	Hardware manufacture & sales	30.02	Manufacture of computers and other information processing equipment	
		32.2	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	
CONTENT				
Other IT & Telecoms	Radio & TV	92.2	Radio and television activities	Skillset
	Video Film and Photography	22.32	Reproduction of video recording	
		74.81	Photographic activities	
		92.11	Motion picture and video production	
		92.12	Motion picture and video distribution	
		92.13	Motion picture projection	
	Publishing	22.11	Publishing of books	
		22.12	Publishing of newspapers	
		22.13	Publishing of journals and periodicals	
		22.15	Other publishing	
		92.40	News agency activities	
	Advertising	74.40	Advertising	Creative & Cultural Skills
	Music	22.14	Publishing of sound recordings	
22.31		Reproduction of sound recording		

Note: there are no design industry codes in SIC 2003.

Please see USB stick for the following Excel Appendix:

Appendix 4.9

SIC 2007_Animation.xlsx

Appendix 4.11

Key words version 2: July 2010

Search Parameters

Information for meeting with TBR- Friday 16th July 2010

Activities as well as industries

Animation is a process- to 'animate'- that is creating a product

Businesses that are we capturing- just over 50% of the industry are staffers

LMI data provided by ONS Skillset Comparisons: From Animation LMI Digest: Skillset 2009

Labour Market data provided by the Office of National Statistics (ONS) do not provide the sectoral detail required by the Creative Media Industry and Skillset to identify and fill skills gaps and shortages.

This is in part due to the way in which industries in the UK's economy are classified e.g. TV and radio combined and cannot be disaggregated, and freelancers are systematically excluded.

2/5 of the animation industry are freelancers (38%) 2009 Report 4,700 employed total (Skillset 2009 Animation LMI Digest, p1)

Skillset Employment Census 2009 data:

Total Animation industry numbers according to Skillset: 4,300

Freelance 2,000 (47%)

Employed 2,300

Total Creative Industry numbers 188,150 (Animation accounts for 2.3% of the total number of employees) *Skillset December 2009 Employment Census

Interesting to see what results we get

Key Words

These are descriptive labels- what's included in animation; more so than a definition...

(Derived from company descriptions in Imagine Animation Directory, search presets on AWN, BVG Mint UK trade description data, Broadcast database, relevant UK HE course titles, Skillset information and Sector Manager. Amended and updated after Stage One TBR work)

Key words for process: (WORD ORDER/ COMPOSITION?) List in no particular order at this stage

- Animation
- Animation Pre Production
- Animation Production (service/s/ company)
- Animation Post Production
- Animation studio
- Animation design
- Animation distribution
- Animate
- Animated Graphics
- Animated web content
- CG Animation
- Website Animation
- Interactive Animation
- ~~Cartoon?~~ (Brings up too many illustrators/ cartoonists)
- Motion graphics
- Broadcast Graphics

- VFX (Visual Effects) or SFX (Special visual effects) (Digital not physical)
- Storyboarding
- Character design
- Character Animation
- 3D Animation - Maya, 3D Studio Max, Lightwave 3D
- 2D traditional Animation - Cel Animation, Drawn animation
- 2D Digital Animation
- (2D/3D) Computer Animation
- Compositing
- Flash/ Adobe Flash
- Stop motion/ stop frame/ model animation- (~~model making~~, puppet making/ design, ~~puppetry~~? May be issues with these terms- see Stage One TBR search data)
- Motion capture (mo-cap)
- 3D CGI (Computer Generated Imagery)
- Real-time simulation
- Digital 3D modeling
- 3D Visualisation
- 3D visuals
- 3D Graphics
- Computer Animation (studio)

Secondary/ associated words (more context/ application based):

- CGI (Computer Generated Imagery)
- Moving Picture + **Animation**
- Broadcast, Feature Film, Broadcast TV, advertising (commercials), idents, pop promos, corporate presentations, education (context) + **Animation**
- Pre- visualisation (Previz) + **Animation**
- Scriptwriting+ **Animation**
- Sound design/ voiceover/ lip sync + **Animation**
- Games design/ Games development (animation occupations sit within these subsectors)
- Interactive content+ **Animation**
- Interactive content creation
- Interactive Design
- Web design+ **Animation**
- Technical illustration+ **Animation**
- Animation incorporated into games
- Interactivity+ **Animation (See primary search above)**
- Optical Effects

- Rotoscoping
- Digital production
- Multimedia Production

(See Skillset Mapping info for possible ranking design- NOTE JW currently seeking updated versions of these)

Companies:

For test model see TBR Stage One filtered database and JW’s own version (East of England)

Imagine 2010 Directory

MINT UK Hard Copies from database and excel sheets

See List of companies from Film Animation and Production (UK) - Portfolio Analysis by Plimsoll

http://www.researchandmarkets.com/reportinfo.asp?report_id=360360&t=d&cat_id=

Occupational Groups: (From Census 2009)

Skillset Occupational Groups
Animation
Producing
Production
Journalism & Sport
Radio Broadcasting
Television Broadcasting
Programme Distribution
Transmission
Broadcast Engineering
Studio Operations
Interactive or Games Production
Interactive or Games Operations
Interactive or Games Business
Draw/Stop Frame Animation
2D/3D Computer Generated Animation
Art & Design
Camera
Costume/Wardrobe
Library/Archives
Lighting
Make Up & Hairdressing
Post Production
Sound
Special Physical Effects
Runner
All Other Occupational Groups

Appendix 4.12 Company Classifications

Actions From 16th July 2010- TBR

How an animation company is defined even at this level is subjective and goes back to the vertical integration issues explored earlier and the issue that many companies will work within co-productions are in partnership with other companies. This means that one company may be responsible for the preproduction whilst another company the production. The list below is meant to be sufficiently flexible to/reflect and allow for these issues

Animation footprint and cross-over's- Definition of animation companies and companies that employ animators. At this stage the definitions will need to be purely focused on animation core activities in order to avoid collecting too broader data on less traditionally animation-related companies that may employ animators i.e. car manufacture, architectural , scientific and medical sectors... these occupational proportions will need to be estimated within the second stage. It must also be understood that a company that has animation in its name may not actually employ animators- see past issues

Simplified version of Skillset sectors and subsectors to avoid double counting:

Full Animation content (input/ output, i.e. TV series production, commercials and feature film)
Core of their business contributes to animation production- these may be disaggregated further dependent on the results of the data search

Computer Games

VFX (plus Post for now)

Interactive Media

[Facilities/ support]

[Distribution]

These are based on skillset' s work on cross-sector mapping, 2009

I have kept these as broad as possible (mainly to see how potentially problematic this will be at this stage) and would rather that we don't classify any companies until we've got our search results based on key words, LOB and SIC

Idea of scope

Examples of companies that represent the above definitions:

Full Animation content (input/ output, i.e. TV series production, commercials and feature film)

Core of their business contributes to animation production- these may be disaggregated further dependent on the results of the data search

Blue Zoo, London

Astley Baker Davies Ltd, London

Loose Moose Productions, London

Lumiere, London

Banana Park, London

Tandem Films, London

Man vs Machine, London

Slinky Pictures, London

Studio Liddell, London and Manchester

Shynola, London

Silver Fox Films (may go under co title: SILVER FOX ANIMATION LLP), London

Sherbert, London

Hibbert Ralph Animation (HRA), London

Partizan Lab, London

RJDM Animations, Northampton see cross-over's:
<http://www.rjdm.com/website/website/index.php>

Skaramoosh Ltd, London (**Animation, motion graphics and VFX**)

Slurpy studios, Hertfordshire
Kingbee animation, London (Herts)
Shutterbug Productions, Middlesex
Silee Films, Nottingham
Rendermedia, Swindon
Mackinnon and Saunders

The Brothers McLeod, Warwickshire
Calon TV, Cardiff (initiated voluntary liquidation as of 30th July 2010)
Dinamo Productions, Pontypridd

Computer Games (Please also see Examples of Games Design Producers List) and UKTI Games In The UK list

Bizarre Creations, Liverpool
Light Creative Ltd- London
Sony Computer Entertainment Europe Limited, London (Studios)
THQ (UK) Ltd, Surrey
Ubisoft, Newcastle
Denki, Dundee
Jagex, Cambridge
Frontier Developments, Cambridge
Blitz Games, Leamington Spa
RARE (Microsoft), Twycross
Realtime Worlds, Dundee
Zoe Mode, Brighton
Wonky, Bristol see <http://www.wonkyfilms.com/> (Games or Animation?)

VFX

The Mill, London
Fluid Pictures, London
Double Negative Visual Effects, London
MPC (Moving Picture Company), London (Owned by Technicolor)
Rushes, London
Base Black, London
Timeslice Films, London
Skyline Imaging Ltd, West Sussex
422 South, Bristol but registered co in Herts
Pepper Post, London (VFX and Design Dept)
Splice, London (Graphics and Animation Dept)
Lola VFX, London
Embassy (UK based?)

Interesting: Soho Studios <http://thejunglegroup.co.uk/index.htm>: **Giant is the only part of this company that would have animators working within it:** <http://www.gianttv.co.uk/>
How is this classified on the database?

Interactive Media (is this too broad at this stage? many companies above also do this- classification issues? Need pinpoint companies that have core animation component)

Redhead Designs Ltd, Milton Keynes
Soup, London or Norwich
Real Projects, Norwich
Magic Lantern, London
Illumina Digital Ltd, London

Facilities/ support (worth leaving in for now this will allow for animation software developers etc which may occur during search due to search criteria, again these companies may be associated with animation but not necessarily include any animators)

John Wright Modelmaking, Bristol
Escape Studios, London
Cambridge Animation Systems (Animo)?
Vicon Motion Systems, Oxford
Festivus, London (Now Animation Base)
Audiomotion, Oxford

Misc (Broad animation related core outputs)

Bird Studios, London
Realtime: UK, London and North (Lancashire)
Jellyfish Pictures, London (VFX, Motion Graphics, Animation)
Artillery Design, Brighton area?
Adamstrainer Media, London (Video for web, motion graphics, interactive, CGI)
Tern Digital, London, Belfast, Glasgow, Aberdeen (transmedia content)
The Pavement, London <http://www.thepavement.com/>

Distribution (these companies are unlikely to have physical animators working within them)

Walt Disney Company Ltd, London
Warner Bros. Entertainment Ltd, London
Turner Broadcasting, London
Hit Entertainment Limited
RDF?

Looking at the above lists and the diversity of many of the company outputs and with very few having one specific production specialism (either platform, genre or animation type) I feel we may need to adapt the classification system 'tags' so that one company can have more than one 'tag' associated to its activity.

Co-locations will also need to be flagged.

Soho, Shoreditch core clusters

Note: Currently with the breath the only way I can see of sorting this data is to manually to check areas such as post, vfx etc have animation depts. This means that the research will be relying (to a certain extent) on empirical data reinforced by evidence comparison.

Appendix 4.13

Explanation of Excel Table N01310R_WTS_Key_words.xls

- Tab S1 details a list of all of the key words generated by this study, the search term used by TBR to identify records and how many results have been returned for each search term.
- Tab S2 details the keywords to exclude and the number of records that were excluded in using each search term
- Tab S3 and S4 give a detailed view of the records that are identified using the problem search term 'cartoon'. S3 is a list of all the businesses in the database with the word 'cartoon' in their name, whilst S4 is a list of all the businesses with the word 'cartoon' in their line of business description. It was agreed at this stage to use the term, 'cartoon but not illustrator' to perform a search to identify the relevant cartoon records. This would also ensure the method is robust and replicable but also allow for issues experienced in the pilot study with the key word search term 'cartoon'.
- Tab S5 provides a list of all of the lines of business that have been identified using the search terms detailed on S1 and S2. These key words were applied after TBR had narrowed the search by using the SIC parameters developed by this study. Within the 'TBR recommended remove' column companies were identified by the author to remove, 'y' denoting that record should be removed, as it was more than likely not to contain any relevant animation activity. (Appendix 4.14 shows the development of items to remove in greater detail)

Please see USB stick for the following Excel Appendices:

Appendix 4.13a

N01310R_WTS_Key_words.xls

Appendix 4.14

PN01310R_WTS2_LOBs_to_remove_jw(1).xls

Appendix 4.15

PN01310R_LOB_Count_&_Keywords.xls

Appendix 4.16

PN01310R_LOB_Count_&_Keywords_2.xls

Appendix 4.16a Development of key words

From: Jodie Wick <j.wick@nuca.ac.uk>
Date: Tue, 10 Aug 2010 11:29:44 -0000
To: Lisa Shearer <Lisa.Shearer@tbr.co.uk>
Subject: RE: Update from Skillset

Hi Lisa,

I had a good meeting with Saint John Walker yesterday (Skillset Animation, Games and Facilities Manager) which has helped a great deal.

The data used in all the Skillset analysis are from their census which is really comprehensive in design but from talking to the research team has a low take-up in terms of rationality i.e. 50 companies for the animation sector responded for the whole of UK with 3 actually being from the East of England.

Talking to Saint and the Research team I really feel that what we are working towards is going to be of great use and is completely new knowledge.

Saint suggested that I also look at animation programming terms that may pop up in key word analysis so here are a few additional words in relation to this and 3D animation modelling, I have also dropped a couple of emails to contacts at large computer animation companies such as Sony to get any additional input from them on key terms:

C++
C# (pronounced C Sharp)
Microsoft XNA
Particle Systems
Dynamics

Other words:
Animatic
Interface Design
Vector Graphics

Saint has also suggested some additional companies for the sector e.g. list (**Full list attached**) as well as some to remove, we need to watch out for Games Publishers (these companies do not employ animators) here are some eggs to avoid:

Eidos
Capcom
Electronic Arts
Nintedo
Sega
Microsoft Games

We have also agreed that using the Skillset sectors will be the best classification system for the data (once gathered) this will allow for best comparison and could be later sorted into Skillset subsectors if necessary, currently I have focused on the highlighted sectors as these have most

animation related employment according to the Skillset data:

Sector

Terrestrial Broadcast
Cable & Satellite
Independent Production (TV)
Radio
Post Production
Studios & Equipment Hire
VFX
Other Services for Film & TV
Film Production**
Film Distribution
Animation
Commercials and Pop Promos
Corporate Production
Online Content
Offline Multimedia
Other Interactive Media
Computer Games
Archives & Libraries

Based on employment figures from:

2009 Census Data, Occupational Roles by Sector

http://www.skillset.org/uploads/excel/asset_14505.xls?1

I think the sector groups may enlarge once we have the data but it gives us a start point. As we discuss we will need to have rules to sort the data but as my case study area is East of England I will probably go back through this data and do a manual check as well.

Thank you very much for your comments on the data they were really helpful in confirming my thoughts.

Given the timescale, I agree that 30/08/10 seems a sensible option to complete Stage One, it may be worth noting I will be away from 20th -30th (Bank Holiday Monday) August inclusive which might have a further bearing on timescales.

With Best Wishes

Jodie

Appendix 4.17a

Key words used to Identify Computer Games and Interactive Media Activities in SIC 6201

Computer games	Term used	Term used/ Notes
computer & adobe	adobe	interactive media
computer & flash	computer	flash = 0 additional results
computer & software	Software bringing up too many incorrect records	
entertainment & software & development	entertain	
game & designers		
video & game	game	video in interactive media
game & design/ers		
games & development		
optical& effects	optica, effect	
mobile phone	mobile, phone	Keyword specific to searching in 6201
fitness	fitness	Keyword specific to searching in 6201
leisure	leisure	Keyword specific to searching in 6201
ready - made	ready	Keyword specific to searching in 6201
audiovisual	visual	Keyword specific to searching in 6201
console	consol	Keyword specific to searching in 6201
station	station	Keyword specific to searching in 6201
feature	feature	Keyword specific to searching in 6201

Jodie Wick, TBR, January 2011

Interactive media	Term used	Term used/ Notes
Interactive/ Interactivity	Interacti	web
web & content	content	media
Multimedia	multi	
Digital	digital	
interactive & content	see above	
interactive & content & creation	creat	
interactive& design	design	
multimedia & production	production	
digital & advertising ?	see above	
web & flash	flash	
web & new media		
new & media		
web & graphic design		new - brings up a lot of 'incorrect' records
web & design (web design) or (website)		

design) or (website development)		
web- could be too problematic from results?		
advertising & media		
advertising & production		
CAD	cad	
Computer aided design	aided	
realtime	realtime	real time
simulation	simulation	
computer and Graphic Designers		
Virtual	virtual	Keyword specific to searching in 6201
innovation	innovat	Keyword specific to searching in 6201

Jodie Wick, TBR, January 2011

Please see USB stick for the following Appendices:

Appendix 4.17

N01310R_LOB_Count__Keywords_jwv3_FDreview.xls

Appendix 4.18

PN01310R_LOB_Count__Keywords_CONFIDENTIAL_jwv5(1).xls

Appendix 4.19

N01310R_Animation_Database.xls

Appendix 4.20

GB Government Office Regions.pdf

Appendix 4.21

UK Government Office Regions by City.pdf

Appendix 4.22

Key Word Removal 12/04/11

PN01310R_Animation_Database_final_ToSend_v3

Additional key words to identify and remove associated erroneous records

I have gone through the database in order and selected the following words; I have then tested them by searching for other company name entries with those words in them:

Golf
Shoot
Yoga
Leisure
Massage
Motorhome/ motorsport/ motocross
Equestrian
Fitness
Property
Dance
Aeroplane
Sailing/Sail
Health
Caravan
Bouncy/ Castle/s
Inflatables
Gyrocopter
Party
Gliding
Yacht
Fishing
Marina
Adventure
Exercise
Events
Tank
Surf
Garden
Dive
Holidays
Nail
Rugby
Engineering
Racing
Charters
Hobbies
Quad
Snooker
Livery
Security
Goal

Spa
Cycle
Sport
Hovercraft
Stud
Gym
Outdoor
Football
Community
Camping
Bike
Ferrari
Lifestyle
Tours
Swimming
Gym
Holidays
Aviation
Survival
Kids
Locomotive
Excursions

Question marks on the following:

Tent- embedded in lots of other words

Boat- embedded in lots of other words

Inn - embedded in lots of other words

School- mostly irrelevant entries but would remove entries such as Kids-preschool animation

Outdoor- mostly would say remove couple of potential web companies

Please see USB stick for the following Excel Appendices:

Appendix 4.23

PN01310R_DuplicateRecords_and_Keywords.xls

Appendix 4.24

PN01310R_Animation_Database_FINAL_V3.xls

Appendix 4.25

PN01310R_Animation_Database_FINAL_V4.xls

Appendix 4.26

PN01310R_Animation_Database_FINAL_V5.xls

Appendix 4.27

SMEStats2009_corrected_version.xls

Appendix 4.30

Adapted Creative Skillset Sector Map

NOTE: To reviewed in conjunction with Creative Skillset Research Strategy (p 20-25) MATRIX CONFIDENTIAL NOT FOR CIRCULATION

Jodie Wick. Updated October 2009

PLEASE NOTE THIS ITEM HAS BEEN REMOVED FOR PUBLICATION

Appendix 4.31
SOC E-Skills

Strategic Skills - Digital

CONFIDENTIAL

C2 Standard Occupational Classification codes

SOC 2000

The following table shows relevant codes from SOC 2000 (the latest available).

Description	SOC 2000	SOC description	SSC
TECHNOLOGY			
Software	2132	Software professionals	e-skills UK
	3131	IT operations technicians	
	3132	IT user support technicians	
	4136	Database assistants & clerks	
Other IT & Telecoms	1136	Information & communication technology managers	
	2131	IT strategy and planning professionals	
	5242	Telecommunications engineers	
	5243	Lines repairers and cable jointers	
	5245	Comp engineer installation & maintenance	
	2423*	Management consultants	
CONTENT			
Radio & TV	3432	Broadcasting and associate professionals	Skillset
	5244	TV, video and audio engineers	
Video, film & photography	3434	Photographers and audio-visual equipment operators	Creative & Cultural Skills
Publishing	3431	Journalists, newspaper and periodical editors	
	5421	Originators, compositors and print preparers	
Advertising	1134	Advertising & Public Relations Managers	
	3433	Public Relations Officers	
	3543	Marketing Associate professionals	
Music	3415	Musicians	
Design	3421	Graphic Designers	

Please see USB for the following Excel Appendix:

Appendix 4.32

images-soc2010index_tcm77-34478.xls

**Appendix 4.33
Creative Skillset SOC**

SOC code	SOC	Description
	1112	Directors and chief executives of major organisations
	3416	Arts officers, producers and directors
	3412	Authors, writers
	9211	Postal workers, mail sorters, messengers, couriers
	3411	Artists
	3434	Photographers and audio-visual equipment operators
	5241	Electricians, electrical fitters
	3415	Musicians
	1132	Marketing and sales managers
	3433	Public relations officers
	3534	Finance and investment analysts/advisors
	1135	Personnel, training and industrial relations managers
	3567	Occupational hygienists and safety officers (health and safety)
	2421	Chartered and certified accountants
	2422	Management accountants
	2423	Management consultants, actuaries, economists and statisticians
	3537	Financial and accounting technicians
	3562	Personnel and industrial relations officers
	3563	Vocational and industrial trainers and instructors
	1136	Information and communication technology managers
	2131	IT strategy and planning professionals
	3131	IT operations technicians
	3132	IT user support technicians
	4131	Pensions and insurance clerks
	4133	Stock control clerks
	4136	Database assistants/clerks
	4141	Telephonists
	4142	Communication operators
	1121	Production, works and maintenance managers
	9241	Security guards and related occupations
	9249	Elementary security operations NEC
	TBR rec	
	5499	Hand craft occupations NEC
	Other Potentials (TBR to advise)	
	3122	Designer, CAD
	2132	Designer, Computer
	3422	Designer, Games

INAL_SIC_SOC_analysis_2_digit_V3.xls

Workbook 1: Analysis using two digit SOC (Appendix 4.34)

Tab S1: Total employment in the sector, split by segment and region. Total employment by region and segment giving overall footprint for each region. This data is from the Stage 1 survey using TCR data.

Tab S2: Standard APS Table using 2 digit SOC by Stage 1 SIC tables (at 4 digit level) Gives data from APS (2009) on how many people from each 2 digit SOC work in the selected 4 digit SIC selected and used in this study for Stage 1. This is a standard table from the ONS.

Tab S3: Proportions of 2 digit SOC by Stage 1, 4 digit SIC table. This table shows the proportion of each occupation in each SIC. The figures have been calculated using the data on S2. For example, the figure of 17% in cell C7 was calculated by dividing 1,475 in cell C7 on S2 by 8,821 in cell C30 on S2.

Tab S4: Tables to show raw employment within each segment (Animation, Computer Games, VFX and Interactive media) split by 4 digit SIC and region, 2009. Includes all tables to show employment within each segment split by 4 digit SIC and region, 2009. This is a raw (unrounded) and detailed data breakdown on employment by SIC from the data produced for part 1 of the project. This data is based on a combination of TCR data and estimates. Due to the complex method involved in creating this information this data was calculated by TBR.

Tab S5: Tables to show employment within each segment split by 4 digit SIC and region, 2009 - rounded for analysis purposes. This is rounded data on employment by SIC from the data produced for part 1 of the project. The data has been rounded to the nearest 5. The figures are exactly the same as those on S4 except that they have been rounded for analysis purposes (please see S4 for unrounded data).

Tab S6: Footprint employment split by SIC and SOC. This table shows the number of people in each 2 digit SOC within the SICs across all the segments (the complete footprint). The data has been calculated by multiplying the proportion data in S3 by the footprint data in S5. For example, cell F7 shows that 17 of the 140 people that work in SIC5913 (Motion picture, video and television programme distribution activities) in the UK are corporate managers. This data is a combination of TCR and APS data.

This was calculated by multiplying cell F7 on S3 (12% of SIC 5913 workers are corporate managers –SOC 11) by cell O10 (total number of people working in SIC 5913 in whole UK which is 9475) on S5:

$140 \text{ (Total Regional Employment for this SIC)} / 100 \times 12\% \text{ (Percentage of people that work in this SIC)} = 16.8 \text{ (17) people work at corporate manager level in SIC 5913.}$

Tab S6a: Footprint employment split by region and SOC. This table further builds on data from S6 (including TCR information from Stage One and APS data) it shows the number of people employed in each occupation within the regions in all the footprint segments. Column C is the total column from S6. Column D divides these figures by the total in C30.

The numbers in cells E6 to Q6 are the region numbers from the table in S1.

The rest of the table then calculates the number of people working in each occupation by region by multiplying the region total numbers by the proportional split.

For example, cell E7 shows that there are 49 people working in the overall footprint in the North East that are corporate managers. This is calculated by multiplying 22% (D7) by 225 (E6).

Tab S7: Animation employment split by SIC and SOC. This table shows the number of people in each 2 digit SOC within the SICs across all of the animation segment.

The data has been calculated by multiplying the proportion data in S3 by the animation data in S5.

For example, cell C7 shows that that 5 of the 30 people that work in SIC 3240 (manufacture of games and toys) potentially related to Animation in the UK are corporate managers.

This was calculated by multiplying cell C7 on S3 (17%) by cell O24 on S5 (30).

Tab S7a: Animation employment split by region and SOC. This table shows the number of people employed in each occupation within the regions in the animation segment.

Column D is the total column from S7. Column E divides these figures by the total in D30.

The numbers in cells F6 to R6 are the region numbers from the table in S1.

The rest of the table then calculates the number of people working in each occupation by region by multiplying the region total numbers by the proportional split.

For example, cell F7 shows that there is 1 person working in the animation segment in the North East that is a corporate manager. This is calculated by multiplying 10% (E7) by 15 (F6).

Tab S8: Computer games employment split by SIC and SOC. This table shows the number of people in each 2 digit SOC within the SICs across the entire computer games segment.

The data has been calculated by multiplying the proportion data in S3 by the computer games data in S5.

For example, cell C7 shows that that 738 of the 2,545 people that work in SIC 6201 (computer programming activities) in the UK are corporate managers.

This was calculated by multiplying cell C7 on S3 (17%) by cell O36 on S5 (2,545).

Tab S8a: Computer games employment split by region and SOC. This table shows the number of people employed in each occupation within the regions in the computer games segment.

Column D is the total column from S7. Column E divides these figures by the total in D30.

The numbers in cells F6 to R6 are the region numbers from the table in S1.

The rest of the table then calculates the number of people working in each occupation by region by multiplying the region total numbers by the proportional split.

For example, cell F7 shows that there are 7 people working in the computer games segment in the North East that are corporate managers. This is calculated by multiplying 29% (E7) by 25 (F6).

Tab S9: Interactive media employment split by SIC and SOC. This table shows the number of people in each 2 digit SOC within the SICs across the entire interactive media segment.

The data has been calculated by multiplying the proportion data in S3 by the interactive media data in S5.

For example, cell C7 shows that that 6,255 of the 21,560 people that work in SIC 6201 (computer programming activities) in the UK are corporate managers.

This was calculated by multiplying cell C7 on S3 (17%) by cell O43 on S5 (21,560).

Tab S9a: Interactive media employment split by region and SOC. This table shows the number of people employed in each occupation within the regions in the interactive media segment. Column D is the total column from S7. Column E divides these figures by the total in D30.

The numbers in cells F6 to R6 are the region numbers from the table in S1.

The rest of the table then calculates the number of people working in each occupation by region by multiplying the region total numbers by the proportional split.

For example, cell F7 shows that there are 41 people working in the interactive media segment in the North East that are corporate managers. This is calculated by multiplying 29% (E7) by 140 (F6).

Tab S10: VFX employment split by SIC and SOC. This table shows the number of people in each 2 digit SOC within the SICs across the VFX segment.

The data has been calculated by multiplying the proportion data in S3 by the VFX data in S5.

For example, cell C7 shows that that 471 of the 8,485 people that work in SIC 5911 (motion picture, video and television programme activities) in the UK are corporate managers.

This was calculated by multiplying cell C7 on S3 (17%) by cell O46 on S5 (8,485).

Tab S10a: VFX employment split by region and SOC. This table shows the number of people employed in each occupation within the regions in the VFX segment.

Column D is the total column from S7. Column E divides these figures by the total in D30.

The numbers in cells F6 to R6 are the region numbers from the table in S1.

The rest of the table then calculates the number of people working in each occupation by region by multiplying the region total numbers by the proportional split.

For example, cell F7 shows that there are 3 people working in the VFX segment in the North East that are corporate managers. This is calculated by multiplying 7% (E7) by 45 (F6).

Appendix 4.35

Explanation of content included in Excel sheet

PN01310R_WTS_FINAL_SIC_SOC_analysis_4_digit_V3.xls

Workbook 2: Analysis using Four digit SOC (Appendix 4.35)

Tab S1: Table to show the total employment in the sector, split by segment and region 2009.

This table is the same as Workbook 1. This table shows the results of part 1 of the project (Appendix 4.26). The data in the table has been rounded to the nearest 5.

Tab S2: 4 digit SOC by 4 digit SIC matrix. This is a standard SIC by SOC matrix from the ONS. Sourced Annual Population Survey (2009). It shows the number of people in each of the SICs that this study was interested in by occupation.

For example, within the UK, 1,028 (cell C7) of the 8,821 employees (cell C17) in SIC 3240 are hand craft occupations n.e.c. (not elsewhere classified) (SOC 5499).

Only the SICs used in part 1 of the project are listed in this table.

The figures in row 17 are provided to enable the calculations in S3. They show the total employment in each SIC (in all SOCs) in the UK.

Tab S3: Proportions of 4 digit SOC by Stage 1, 4 digit SIC table. Sourced again from the Annual Population Survey (2009) This table shows the proportion of each occupation in each SIC. The figures have been calculated using the data on S2.

For example, the figure of 12% in cell C7 was calculated by dividing 1,028 in cell C7 on S2 by 8,821 in cell C17 on S2.

Tab S4: Tables to show employment within each segment split by 4 digit SIC and region, 2009.

This is raw (unrounded) data on employment by SIC from the data produced for part 1 of the project and as included in Workbook 1.

Tab S5: Tables to show employment within each segment of the footprint split by 4 digit SIC and region, 2009 - rounded for analysis purposes. This is rounded data on employment by SIC from the data produced for part 1 of the project. The data has been rounded to the nearest 5. The figures are exactly the same as those on S4 except that they have been rounded for analysis purposes (please see S4 for unrounded data).

Tab S6: Total employment split by SIC and SOC. This table shows the number of people in each 4 digit SOC within the SICs across all the segments (the complete footprint).

The data has been calculated by multiplying the proportion data in S3 by the footprint data in S5.

For example, cell C7 shows that 4 of the 8,821 people that work in SIC 3240 (manufacture of games and toys) in the UK work in hand craft occupations n.e.c.

This was calculated by multiplying cell C7 on S3 proportion (12%) by cell O7 on S5 footprint (35).

Sub totals explanation: For example there are 5 people employed in SIC 3240 and all of the SOCs selected to study at 4 digit level (cell C15). There are 30 people employed in SIC 3240 across the other SOCs not listed (cell c17) i.e the SOCs that were not selected here to be studied by 4 digit. Therefore, 35 people are employed in SIC 3240 (cell c19) across all SOCs in the SOC system.

Tab S6a: Total employment split by region and SOC. This table shows the number of people employed in each occupation within the regions in all the footprint segments.

Column C is the total column from S6. Column D divides these figures by the total in C17.

The numbers in cells E6 to Q6 are the region numbers from the table in S1.

The rest of the table then calculates the number of people working in each occupation by region by multiplying the region total numbers by the proportional split.

For example, cell E9 shows that there are 10 people working in the overall footprint in the North East that are graphic designers. This is calculated by multiplying 5% (D9) by 225 (E6).

Tab S7: Animation employment split by SIC and SOC. This table shows the number of people in each 4 digit SOC within the SICs across the animation segment.

The data has been calculated by multiplying the proportion data in S3 by the footprint data in S5.

For example, cell D7 shows that that 3 of the 8,821 people that work in SIC 3240 (manufacture of games and toys) in the UK work in hand craft occupations n.e.c.

This was calculated by multiplying cell C7 on S3 (12%) by cell O24 on S5 (30).

Tab S7a: Animation employment split by region and SOC. This table shows the number of people employed in each occupation within the regions in the animation segment.

Column D is the total column from S7. Column E divides these figures by the total in D17.

The numbers in cells F6 to R6 are the region numbers from the table in S1.

The rest of the table then calculates the number of people working in each occupation by region by multiplying the region total numbers by the proportional split.

For example, cell F10 shows that there are 2 people working in the animation segment in the North East that are arts officers, producers and directors. This is calculated by multiplying 12% (E10) by 15 (F6).

Tab S8: Computer games employment split by SIC and SOC. This table shows the number of people in each 4 digit SOC within the SICs across the computer games segment.

The data has been calculated by multiplying the proportion data in S3 by the computer games data in S5.

For example, cell D8 shows that that 6 of the 193,324 people that work in SIC 3240 (computer programming activities) in the UK work as product, clothing and related designers.

This was calculated by multiplying cell J8 on S3 (0.2%) by cell O36 on S5 (2,545).

Tab S8a: Computer games employment split by region and SOC. This table shows the number of people employed in each occupation within the regions in the computer games segment.

Column D is the total column from S8. Column E divides these figures by the total in D17.

The numbers in cells F6 to R6 are the region numbers from the table in S1.

The rest of the table then calculates the number of people working in each occupation by region by multiplying the region total numbers by the proportional split.

For example, cell F9 shows that there are 2 people working in the computer games segment in the North East that are graphic designers. This is calculated by multiplying 7% (E9) by 25 (F6).

Tab S9: Interactive media employment split by SIC and SOC. This table shows the number of people in each 4 digit SOC within the SICs across the interactive media segment.

The data has been calculated by multiplying the proportion data in S3 by the interactive media data in S5.

For example, cell D8 shows that that 52 of the 193,324 people that work in SIC 6201 (computer programming activities) in the UK work as product, clothing and related designers.

This was calculated by multiplying cell J8 on S3 (0.2%) by cell O41 on S5 (21,560).

Tab S9a: Interactive media employment split by region and SOC. This table shows the number of people employed in each occupation within the regions in the interactive media segment.

Column D is the total column from S9. Column E divides these figures by the total in D17.

The numbers in cells F6 to R6 are the region numbers from the table in S1.

The rest of the table then calculates the number of people working in each occupation by region by multiplying the region total numbers by the proportional split.

For example, cell F9 shows that there are 9 people working in the interactive media segment in the North East that are graphic designers. This is calculated by multiplying 7% (E9) by 140 (F6).

Tab S10: VFX employment split by SIC and SOC. This table shows the number of people in each 4 digit SOC within the SICs across the VFX segment.

The data has been calculated by multiplying the proportion data in S3 by the VFX data in S5.

For example, cell D8 shows that that 61 of the 45,905 people that work in SIC 5911 (motion picture, video and television programme production activities) in the UK work as product, clothing and related designers.

This was calculated by multiplying cell J8 on S3 (0.2%) by cell O41 on S54 (10,510).

Tab S10a: VFX employment split by region and SOC. This table shows the number of people employed in each occupation within the regions in the VFX segment.

Column D is the total column from S10. Column E divides these figures by the total in D17.

The numbers in cells F6 to R6 are the region numbers from the table in S1.

The rest of the table then calculates the number of people working in each occupation by region by multiplying the region total numbers by the proportional split.

For example, cell F10 shows that there are 5 people working in the VFX segment in the North East that are arts officers, producers and directors. This is calculated by multiplying 12% (E10) by 45 (F6).

Please see USB for the following Excel Appendices:

Appendix 4.34a

PN01310R_WTS_FINAL_SIC_SOC_analysis_2_digit_V3.xls

Appendix 4.35a

PN01310R_WTS_FINAL_SIC_SOC_analysis_4_digit_V3.xls

Appendix 4.36

Companies Norfolk_Survey.xls

Appendix 4.37

East of England 'Control' Database- update sources

East of England 'Control' Database Update Sources

Telephone Directories

- Yell.com- General company search under Animation, animate, animator, Computer Games, Visual Effects, VFX

Industry Directories

- Imagine 2009 Directory (HARD COPY)- Animation and Games Companies in production section, Film and TV section containing VFX companies)

- AWN; Animation Industry Database: <http://www.aidb.com/>

- Regional Film and video, various: <http://www.4rfv.co.uk/>

<http://www.4rfv.co.uk/brieflisting.asp?scategory=26>

- Kemps: <http://www.kftv.com/product-country-320-GBR.html>

http://www.freeindex.co.uk/categories/arts_and_lifestyle/media_production/animation/

Several categories here including 'motion graphics and animation' Use the above directory to search for the other classifications

- VFX look at: <http://www.ukscreen.com/dir/company/Digital+Visual+Effects>

Company Databases

- Plimpsoil (Data collection company) list of Animation companies and Animation Film Production Companies (2008).

- Mint Company Directory entries for Animation (2010)

- UKTI Games Company List (Dated 2006 but used on their website until 2010)

- Companies House data CD ROM (2010)

Appendix 4.38a

2009 Creative Skillset Employment Census Data Table explanations

Occupational Roles by Sector (Asset_14505.xls- Appendix 4.39)

This table includes occupational groups and numbers of people working in specific roles within those groups. For example, the occupational group of animation has roles such as '2D Drawn' and '2D Computer Generated' within it. These tables provide UK data for roles within subsectors for each Creative Skillset industry classification. The subsector data pertains to everyone working within animation companies in the UK- both freelance and employed, including all workers, from animators to those in business and strategic management, production and a small number of other occupational groups such as lighting and editing. Data can also be reviewed on animators' roles within other sectors in the UK as a whole. This is the most detailed data on occupational roles for each sector of the SSC's coverage.

Occupational Group by Sector (Asset_14504.xls- Appendix 4.40)

Occupational group data refers to potentially embedded animators within other creative media sub sectors. This gives information about how many staff from all occupational groups work within the subsector of animation in the UK. This data does not include specific roles beyond the occupational group.

Occupational Group by Region (Asset_14503.xls- Appendix 4.41)

This data gives an overview of occupational group numbers within each Creative Skillset defined region within the UK including freelancers and those in full time employment.

This gives an estimation of a maximum total of 150 people as the occupational group of animators working in various subsectors in the East of England in 2009. However, detailed figures reveal that there were approximately 100 employees (up to 124) and a value of between 1 and 24 working as freelance on the census date.

Region by Sector (Asset_14506-1.xls- Appendix 4.42)

Anyone working specifically in the animation subsector in the East of England in any occupational group or role, both employees and freelance, was found at a value of between 1 and 24. This data for the East of England was comparable with all other regions.

Sector by Region (Asset_14507-2.xls- Appendix 4.43)

Using the same information as the last table, but comparing data to reveal other sector employment in the region.

Please see USB for the following Excel Appendices:

Appendix 4.38

Skillset OFM June 2009 - Mapped onto SOC for Jodie

Appendix 4.39

Asset_14505.xls

Appendix 4.40

Asset_14503.xls

Appendix 4.41

Asset_14504.xls

Appendix 4.42

Asset_14506-1.xls

Appendix 4.43

Asset_14507-2.xls

Appendix 4.44
Creative Skillset census 2009- Response by Sector

Figure 1 Response by Sector

Sector	Paper	Online	Total
TELEVISION			
Terrestrial Broadcast	0	7	7
Cable and Satellite	3	3	6
Independent Production	77	40	147
RADIO			
Broadcast Radio	17	60	77
Community Radio	7	2	9
Independent Production	3	2	5
FACILITIES			
Post Production	40	39	79
Studio and Equipment Hire	38	14	52
Outside Broadcast	6	3	9
VFX	3	6	9
Special Physical Effects	2	6	8
Manufacture of AV Equipment	5	0	5
Processing Labs	1	0	1
Other Services for Film and TV	67	39	106
FILM			
Production	44	23	67
Distribution	1	6	7
Exhibition	75	1	76
ANIMATION	25	25	50
COMMERCIALS AND POP PROMOS	6	9	15
CORPORATE PRODUCTION	43	36	79
INTERACTIVE MEDIA			
Online Content	26	77	103
Mobile Content	1	1	2
Offline Multimedia	11	6	17
Other Interactive Media	9	11	20
COMPUTER GAMES			
Development	8	19	27
Publishing	1	2	3
Development Support	2	3	5
ARCHIVES AND LIBRARIES	13	5	19
TOTAL	534	475	1,010

(Creative Skillset, 2009, p.7-8)

Appendix 4.45
Company Split from SSA

Table 2 Company breakdown

Sector	Number of Companies
Television	1,300
Radio	800
Film	550
Animation	650
Interactive Media	7,450
Content for Computer Games ¹	500
Other Content Creation (Corporate, Commercials and Pop Promos)	500
Facilities	3,200
Publishing	11,600
Photo Imaging	8,700
Advertising	13,950
Archives & Libraries	100
Total	48,800

Table 22: Number of Companies by Sector and Nation/Region²

	Wales	Scotland	Northern Ireland	England	London	Rest of England
Television	50	100	50	1000	350	650
Radio	50	100	*	650	150	550
Facilities	100	200	100	2,700	550	2,150
Film³	*	*	*	300	250	50
Animation	*	50	*	500	250	250
Other Content	*	50	*	450	250	200

¹ Based on Skillset 2010 Company Database which provides geographical information regarding 221 Content for Computer Games companies within the population as identified by NESTA (485).

² Skillset 2010 Company Database (created from a variety of sources including previous research participants, Trade Association membership lists and Industry Directories). All figures have been verified with sector representatives. There are some companies within the database for which no postal address is held and hence are not included in this breakdown. NESTA (Content for Computer Games) and IDBR 2009 (Photo Imaging, Publishing and Advertising).

Note: figures for Content for Computer Games are likely to change in light of work currently being conducted by NES TA and due for release in January 2011. * = less than 50

³ Excludes Cinema Exhibition

Creation						
Interactive Media	300	500	150	5,950	1200	4750
Content for Computer Games	*	*	*	200	50	150
Publishing	300	600	150	10,550	2,750	6,100
Photo Imaging	200	500	100	7,900	3,100	4,800
Advertising	*	550	200	13,000	3,950	9,000
Total	1,300	2,600	700	43,150	12,850	28,600

Please see USB for the following Excel Appendix:

Appendix 4.46

SIC2007AlphabeticalIndexLatestVersionOctober2010.xls

Chapter 5

Please see USB for the following Excel Appendices:

Appendix 5.1

TCR_LOB_Count_Keywords_jwv6.xls

Appendix 5.2

TCR_Animation_Database_Companies.xls

Appendix 5.3

TCR_Final_SIC_SOC_analysis_2_digit_V4.xls

Appendix 5.4

Creative Skillset Animators Occupational Roles and Job Titles.xls

Appendix 5.5

TCR_SIC_SOC_analysis_4_digit_V4.xls

Appendix 5.6
Animation/ Related Company Telephone Questionnaire

Date: _____ Time: _____

Name of Company: _____ Database Classification: _____

Hello,

My name is _____ and I am calling on behalf of one of our Lecturing staff at Norwich University Collage of the Arts who is conducting some research on regional creative media companies looking at size, scale and occupational roles. The outcomes of the research will be used to generate evidence of the current size and scale of the industry- there is currently very little information on this region and so we hope to increase our knowledge and understanding in order to provide help and support for our graduates and local industry.
I have a few short questions I hope you may be able to answer: (I will keep you no longer than 5 minutes)

Name of person you are speaking to: _____ (if they wish to share)

Position: _____ (if they wish to share)

What would you classify your company as: (Tick One only)

- Animation
- Computer Games
- Visual Effects (VFX)
- Interactive Media
- None of the above

Why have you chosen the above classification?

How many people work at your company?

Just you (Sole Trader)

Number of employees

Number of freelancers

Are any of these people Animators/ primary job role to create animated content?

Number of employees

Number of freelancers

What is the age of your company? _____ Years

Does the business have any other sites/ locations? ----- (Tick as applicable)

No

Yes

If yes try to find out if this is their main site and where else the other sites are- do not push this if they are eager to end the telephone conversation.

Thank you for your time it is very much appreciated.

Would you be happy to be contacted again? _____

Notes:

Refused Interview? _____

Contact never made? _____ Reason: _____

Arranged Call back if time was inconvenient? _____

Date _____

Time _____

Telephone number (if different from database entry)

Please see USB for the following Appendices:

Appendix 5.7

EEcensus_company_database_08_04_11_001.xls

Appendix 5.8

EEcensus_company_database_002.xls

Appendix 5.9

TBR_TCRWeighting&EstimationExplanation_NOTTOBEPUBLISHED **(confidential and provided only for examination purposes- this item has been removed for publication)**

Appendix 5.10

Asset_14506.xls

Appendix 5.12

Asset_14505.xls

Appendix 5.13

Asset_14503.xls

Appendix 5.14

Asset_14504.xls

Appendix 5.15

Asset_14507.xls

Appendix 5.16 (FOLDER)

Final Mapping

Containing interactive visuals to be opened and viewed in Firefox:

5.17_TCR_Animation.html

5.18_TCR_VFX.html

5.19_Comparative TCR_Control_Animation.html

Appendix 5.20

13_06_11_EEFinalControlDatabase

Appendix 5.21

Creative Skillset Company Database Triangulated UK Calculations

Animation

UK	Animation Sector	Rest of creative media Industries
Animation Occupational Group	(A) 1,500 (18%)	(B) 8,160- 1,500= 6,660 (82%)
All other occupational areas	(C) 4,300- 1500 (35%)= 2,800 (65%)	(D) UK Total 170,550 -8,160 =162,390 (95%)

Table 2: Creative Skillset UK data applied to the Animation sector

Computer Games

UK	Computer Games Sector	Rest of creative media Industries
Animation Occupational Group	(A) 400 (5%)	(B) 8,160- 400= 7,760 (95%)
All other occupational areas	(C) 7,050- 400 (6%)= 6,650 (94%)	(As Table 2)

Table 3: Creative Skillset UK data applied to the Computer Games sector

Interactive Media

UK	Online Content Sector	Rest of creative media Industries
Animation Occupational Group	350	8,160- 350= 7,810
All other occupational areas	27,550- 350= 27,200	

Table 4: Creative Skillset UK data applied to the Interactive Media sector (Online Content)

UK	Offline Multimedia Sector	Rest of creative media Industries
Animation Occupational Group	150	8,160- 150= 8,010
All other occupational areas	2,750- 150 = 2,600	

Table 5: Creative Skillset UK data applied to the Interactive Media sector (Offline Content)

UK	Other Interactive Media Sector	Rest of creative media Industries
Animation Occupational Group	50	8,160- 50= 8,110
All other occupational areas	3,950- 50 = 3900	

Table 6: Creative Skillset UK data applied to the Interactive Media sector (Other Interactive Media)

UK	Total Interactive Media Sector	Rest of creative media Industries
Animation Occupational Group	(A) 550 (7%)	(B) 8,160- 550= 7,610 (93%)
All other occupational areas	(C) 34,250-550 (2%)= 33,700 (98%)	(As Table 2)

Table 7: Creative Skillset UK data applied to the Interactive Media sector (Including all of the above sectors)

VFX

UK	VFX Sector	Rest of creative media Industries
Animation Occupational Group	(A) 4,300 (53%)	(B) 8,160- 4,300= 3,860 (47%)
All other occupational areas	(C) 6,900- 4,300 (62%)= 2,600 (38%)	(As Table 2)

Table 8: Creative Skillset UK data applied to the VFX sector

Revised calculations using only figures based on the selected sectors:

Animation

UK	Animation Sector	Rest of selected sectors
Animation Occupational Group	(A) 1,500 (22%)	(B) 6,750- 1,500= 5,250 (78%)
All other occupational areas	(C) 4,300- 1500 (35%)= 2,800 (65%)	(D) UK Total 52,500 - 6750 (13%) = 45,750 (87%)

Table 9: Creative Skillset UK data applied to the Animation sector and rest of selected sectors

Computer Games

UK	Computer Games Sector	Rest of selected sectors
Animation Occupational Group	(A) 400 (6%)	(B) 6,750- 400= 6,350 (94%)
All other occupational areas	(C) 7,050- 400 (6%)= 6,650 (94%)	(As Table 9)

Table 10: Creative Skillset UK data applied to the Computer Games sector and rest of selected sectors

Interactive Media

UK	Total Interactive Media Sector	Rest of selected sectors
Animation Occupational Group	(A) 550 (8%)	(B) 6,750- 550= 6,200 (92%)
All other occupational areas	(C) 34,250-550 (2%)= 33,700 (98%)	(As Table 9)

Table 11: Creative Skillset UK data applied to the Interactive Media sector (Including all of the above sectors) and selected sectors

VFX

UK	VFX Sector	Rest of selected sectors
Animation Occupational Group	(A) 4,300 (64%)	(B) 6,750- 4,300= 2,450 (36%)
All other occupational areas	(C) 6,900- 4300 (62%)= 2,600 (38%)	(As Table 9)

Table 12: Creative Skillset UK data applied to the VFX sector and selected sectors

Appendix 5.22

Triangulation of data from TCR All UK Segments

UK Animation

UK	Animation Sector	Rest of selected sectors		
Animation Occupational Group	A) Total Animators working in the identified sector (Tab 7)	B) Total Animators		
	SOC 3411 61 (13%)	SOC 3411 427 (87%)	With Closely Related SOC's 2,251 (90%)	With All Related SOC's (Total all) 12,165 (97%)
	With Closely Related SOC's 243 (10%)			
	With All Related SOC's 337 (3%)			
All other occupational areas	1,354 (96%)	F) Outside of SOC area 22,450 (65%)		
	1,172 (83%)			
	E) 1,078 (76%)			
Total	C) Total sector employment 1,415	D) Remaining UK footprint total Creative employment 36,031- 1,415= 34,616 (96%)		

Table 14: TCR UK data applied to the Animation sector

UK Computer Games

UK	Computer Games Sector	Rest of selected sectors		
Animation Occupational Group	A) Total Animators working in the identified sector (Tab 8)	B) Total Animators		
	SOC 3411 20 (4%)	SOC 3411 468 (96%)	With Closely Related SOC's 2,474 (99%)	With All Related SOC's (Total all) 11,448 (92%)
	With Closely Related SOC's 20 (1%)			
	With All Related SOC's 1,054 (8%)			
All other occupational areas	2,525 (99%)	F) Outside of SOC area 22,037 (66%)		
	2,525 (99%)			
	E) 1,491 (59%)			
Total	C) Total sector employment 2,545	D) Remaining UK footprint total Creative employment 36,031- 2,545= 33,486 (93%)		

Table 15: TCR UK data applied to the Computer Games sector

UK Interactive Media

UK	Interactive Media Sector	Rest of selected sectors		
Animation Occupational Group	A) Total Animators working in the identified sector (Tab 9)	B) Total Animators		
	SOC 3411 168 (34%)	SOC 3411 320 (66%)	With Closely Related SOC's 2,326 (93%)	With All Related SOC's (Total all) 3,574 (29%)
	With Closely Related SOC's 168 (7%)			
	With All Related SOC's 8,928 (71%)			
All other occupational areas	21,392 (99%)	F) Outside of SOC area 10,896 (75%)		
	21,392 (99%)			
	E) 12,632 (59%)			
Total	C) Total sector employment 21,560	D) Remaining UK footprint total Creative employment 36,031- 21,560= 14,471 (40%)		

Table 16: TCR UK data applied to the Interactive Media sector

UK VFX

UK	VFX Sector	Rest of selected sectors		
Animation Occupational Group	A) Total Animators working in the identified sector (Tab 10)	B) Total Animators		
	SOC 3411 239 (49%)	SOC 3411 249 (51%)	With Closely Related SOC's 431 (17%)	With All Related SOC's (Total all) 10,322 (83%)
	With Closely Related SOC's 2,063 (83%)			
	With Closely All SOC's 2,183 (17%)			
All other occupational areas	10,271 (99%)	F) Outside of SOC area 15,201 (60%)		
	8,447 (99%)			
	E) 8,327 (59%)			
Total	C) Total sector employment 10,510	D) Remaining UK footprint total Creative employment 36,031- 10,510= 25,521 (70%)		

Table 17: TCR UK data applied to the VFX sector

Appendix 5.24

Creative Skillset and the East of England; Trident calculations

The Computer Games sector in the East of England

East of England	Computer Games Sector	Total Animators in all creative media industries
Animation Occupational Group	78-8	(5% of 150= 7.5) 150-8= 142 or 150/100 x95 150- 142.5 = 10.5
Total workers	1,300	

Table 19: Creative Skillset East of England data applied to the Computer Games sector

The Interactive media sector in the East of England

East of England	Online Content	Rest of creative media Industries
Animation Occupational Group	-	Approx 150
All other occupational areas	350	

Table 20: Creative Skillset East of England data applied to the Interactive Media sector (Online Content)

East of England	Offline Multimedia Content	Rest of creative media Industries
Animation Occupational Group	-	Approx 150
All other occupational areas	150	

Table 21: Creative Skillset East of England data applied to the Interactive Media sector (Offline Multimedia Content)

East of England	Other Interactive Media Sector	Rest of creative media Industries
Animation Occupational Group	-	Approx 150
All other occupational areas	0	

Table 22: Creative Skillset East of England data applied to the Interactive Media sector (Other Interactive Media)

East of England	Total Interactive Media Sector	Rest of creative media Industries
Animation Occupational Group	11-10	(7% of 150= 10.5) 150-11= 139 or 150/100 x93 150- 139.5 = 10.5
All other occupational areas	500 500/100x98 500-490= 10	

Table 23: Creative Skillset East of England data applied to the Interactive Media sector (Total)

Appendix 5.25
TCR Regional Data Pivot Tables

The Computer Games sector in the East of England

East of England	Computer Games Sector	Rest of selected sectors		
Animation Occupational Group	A) Total Animators working in the identified sector (Tab 8a)	B) Total Animators		
	SOC 3411 0 (0%)	SOC 3411 20 (100%)	With Closely Related SOC's 66 (100%)	With All Related SOC's (Total all) 739 (97%)
	With Closely Related SOC's 0 (0%)			
With All Related SOC's 25 (3%)				
All other occupational areas	60 (100%)	F) Outside of SOC area 1,181 (97%)		
	60 (100%)			
	E) 35 (58%)			
Total	C) Total sector employment 60	D) East of England total Creative employment 1,980- 60= 1,920 (97%)		

Table 25: TCR East of England data applied to the Computer Games sector

The Interactive Media sector in the East of England

East of England	Interactive Media Sector	Rest of selected sectors		
Animation Occupational Group	A) Total Animators working in the identified sector (Tab 9a)	B) Total Animators		
	SOC 3411 13 (65%)	SOC 3411 7 (35%)	With Closely Related SOC's 53 (80%)	With All Related SOC's (Total all) 85 (11%)
	With Closely Related SOC's 13 (20%)			
With All Related SOC's 679 (89%)				
All other occupational areas	1627 (99%)	F) Outside of SOC area 255 (21%)		
	1627 (99%)			
	E) 961 (59%)			
Total	C) Total sector	D) East of England total		

	employment 1,640	Creative employment 1,980- 1,640= 340 (17%)
--	----------------------------	---

**Table 26: TCR East of England data applied to the Interactive Media sector
The VFX sector in the East of England**

East of England	VFX Sector	Rest of selected sectors		
Animation Occupational Group	A) Total Animators working in the identified sector (Tab 10a)	B) Total Animators		
	SOC 3411 5 (25%)	SOC 3411 15 (75%)	With Closely Related SOC's 20 (30%)	With All Related SOC's (Total all) 714 (93%)
	With Closely Related SOC's 46 (70%)			
	With All Related SOC's 50 (7%)			
All other occupational areas	235 (98%)	F) Outside of SOC area 1,026 (84%)		
	194 (81%)			
	E) 190 (79%)			
Total	C) Total sector employment 240	D) East of England total Creative employment 1,980- 240= 1,740 (88%)		

Table 27: TCR East of England data applied to the VFX sector

Please see USB for the following Appendix:

Appendix 5.26
UKTI_Gameslist

Appendix 5.27

Distribution of 5 digit SIC Classifications for identified Companies and associated 4 digit employment

UK Animation

SIC 2007	Number of Companies Classified in this SIC	Employment	4 Digit SIC
32409	5	32	3240
59111	144	992	5911
59112	18		
59113	5		
59120	13	61	5912
62011	4	22	6201
62012	3		
62090	14	14	6209
73110	27	12	7311
74100	34	93	7410
90030	2	75	9003

UK VFX

SIC 2007	Number of Companies Classified in this SIC	Employment	4 Digit SIC
32409	1	1	3240
59111	1429	8483	5911
59112	18		
59113	313		
59120	49	1750	5912
59131	8	140	5913
59133	7		
59200	4	14	5920
60200	2	10	6020
61100	1	30	6110
62012	1	2	6201
73110	3	70	7311
74100	1	1	7410
74203	2	9	9003

Figures based on TCR Company database VFX and animation segment count and 4 digit SIC employment counts (Unrounded figures)

Appendix 5.28
UK SOC 2007 UK SOC Job Titles

Unit Group: SOC 3411	Group Title: Artists
Job Title	Animator Artist, Fashion Artist, medical (<i>hospital service</i>) Artist, press Artist, scenic Artist Artists and designer, fashion Artists-designer Assistant, sculptor's Calligrapher Cartoonist Cleaner, picture
	Engraver, portrait Etcher, black and white Illustrator, book Illustrator, chief Illustrator, fashion, Illustrator, leading, Illustrator, medical, Illustrator, senior, Illustrator, technical, Illustrator Modeller, artistic Painter, artistic Painter, colour, water Painter, landscape Painter, marine Painter, miniature Painter, portrait Restorer, art Restorer, picture Sculptor Technician, art

Appendix 5.29 SOC Proposal

FAO Michaela Morris

Occupation, Social & Country Classifications Helpdesk Manager | Classifications & Harmonisation |
Room 2400 | Office for National Statistics

Dear Michaela,

Thanks again for your response to my query.

As discussed I would like to make a suggestions for updates to the index:

Rationale

I have based these suggestions on my research around the area of animation and identification of occupations within this subsector. Within my PhD thesis I have been experimenting with government data around SOC codes in order to better identify those working as Animators within the UK economy. Previous research has identified those working as animators within the animation sector however I am keen to understand where animators work within the wider economy. Animation is an integral part of a wide range of content creation for many platforms and therefore provides difficulty when identifying activity in this area as a discrete sector. Many animators work across varied sectors both within the creative industries and also non-creative industries. This sector has seen an increase in production and employment (53%-most recent 2012 Skillset workforce survey) following the 2013 introduction of UK Tax breaks for the animation industry and it is predicted this will increase further. The UK has 83 institutions offering specialist undergraduate courses in the study of animation (from the UCAS web portal 20/01/15) with over 90% of the workforce holding degree level qualifications (Skillset, 2008). Inspired by the in the most recent updates to the index (26th November 2014), in relation to the unit group 3421 Graphic Designers, I would like to propose the following updates. These are intended to better capture the creative intensity of this area of occupation and better identify its diversity through specialist and embedded occupational groups across the creative economy.

A recognisable job title

These job titles are based on Creative Skillsets occupational taxonomy and are known occupational areas for Graduates entering the industry. The Government also recently (6th April 2014) identified shortages in the occupational areas of 'Animator in visual effects and 2D/3D computer animation for the film, television or video games sectors' (p.9)

To be situated within SOC 3411: Artists:

Animator, effects, visual
Animator, VFX

I have selected both visual effects and VFX inline with the new Artist classifications; Artist, effects, digital and Artist, VFX

Animator, 2D, computer
Animator, 3D, computer

The occupations above cover animators working with varied software applications and those potentially working in the computer games industries. It would be more appropriate to include the term generated, ie Animator, 2D, computer generated, in order to ensure it is clear the animation is produced by means of using computer software but I note you do not use the term 'generated' anywhere else within the classifications.

Animator, stop motion

This occupational area covers those working with models or puppets to generate animation, this is a standard term and widely recognized within the industry.

Animator, 2D

This occupation covers those producing animation using principally traditional methods such as drawing.

Additionally, a related subsector:

Artist, games, computer

Currently the index includes 'designer, games, computer', design is different to artist creation for in game content. Artists are responsible for the visual look of the game rather than the way it is played. There are currently 21 training providers at Level 4 and above (UCAS webportal)

A job description

I have provided job descriptions from Skillsets website as these demonstrate they are widely identified occupations, recognized by the sector Skills Council and therefore comparable in terms of their research:

Animator, 2D, computer

http://creativeskillset.org/creative_industries/animation/job_roles/353_animator_2d_computer_animation

Animator, 3D, computer

http://creativeskillset.org/creative_industries/animation/job_roles/370_animator_3d_computer_animation

Animator, stop motion

http://creativeskillset.org/creative_industries/animation/job_roles/346_animator_stop_motion

Animator, 2D

http://creativeskillset.org/creative_industries/animation/job_roles/363_animator_2d_drawn_animation

Animator, effects, visual

Animator, VFX

http://creativeskillset.org/creative_industries/animation/job_roles/358_compositor

Artist, games, computer

http://creativeskillset.org/creative_industries/games/job_roles/330_games_artist

The industry

These job roles would mainly be found within the Creative Industries, within the sector of Animation. As discussed greater breadth of occupational roles (as demonstrated by the addition to the index of other industry roles) would allow for better identification of this occupational area.

Any qualifications needed to do the job

As discussed and identified 92% of those working in the sector have degree level qualifications.(2012 Creative Skillset workforce survey,p17)

Please let me know if you require any further information or if you wish to discuss anything further.

Many thank in advance for your time on this matter.

With Kindest Regards

Jodie

Please see USB for the following Appendices:

Interactive visuals to be opened and viewed in Firefox:

Appendix 5.30

TCR_VFX.html

Appendix 5.31

TCR_Animation.html

Appendix 5.32

Comparative TCR_Control_Animation.html

Appendix 5.33

CreativeSkillsetCensus 2009 Breakdown.xls

Appendix 5.34
Creative Skillset/ TCR Comparison

Summary of triangulated UK findings for selected sectors only

Sector	Reverse Intensity	Normal Intensity	% of UK total sector employees working as animators in selected sector
Animation	22%	35%	3%
Computer Games	6%	6%	1%
Interactive Media	8%	2%	1%
VFX	64%	62%	8%
Total	100%	N/A	13%

Summary of triangulated UK findings for selected sectors

Sector	Reverse Intensity			Normal Intensity			% of total workers outside of selected SOC area	% of UK total selected sector employees working within sector
	SOC 3411	With All Related SOC's	With Closely Related SOC's	SOC 3411	With All Related SOC's	With Closely Related SOC's		
Animation	13%	10%	3%	4%	17%	24%	65%	4%
Computer Games	4%	1%	8%	1%	1%	42%	66%	7%
Interactive Media	34%	7%	71%	1%	1%	41%	75%	60%
VFX	49%	83%	17%	2%	19%	21%	60%	30%
Total	100%	101%	99%	N/A			N/A	100%

Summary of triangulated Regional findings for selected sectors

Sector	Reverse Intensity			Normal Intensity (As UK)			% of total workers outside of selected SOC area	% of EE total selected sector employees working within sector
	SOC 3411	With All Related SOCs	With Closely Related SOC's	SOC 3411	With All Related SOCs	With Closely Related SOC's		
Animation	10%	11%	1%	4%	17%	24%	98%	2%
Computer Games	0%	0%	3%	1%	1%	41%	97%	3%
Interactive Media	65%	20%	89%	1%	1%	41%	21%	83%
VFX	25%	70%	7%	1%	1%	41%	84%	12%
Total	100%	101%	100%	N/A			N/A	100%

Appendix 5.35

TCR East of England Triangulation Comparison

Summary of triangulated UK findings for selected sectors

Sector	Reverse Intensity			Normal Intensity			% of total workers outside of selected SOC area	% of UK total selected sector employees working within sector
	SOC 3411	With All Related SOCs	With Closely Related SOC's	SOC 3411	With All Related SOCs	With Closely Related SOC's		
Animation	13%	10%	3%	4%	17%	24%	65%	4%
Computer Games	4%	1%	8%	1%	1%	41%	66%	7%
Interactive Media	34%	7%	71%	1%	1%	41%	75%	60%
VFX	49%	83%	17%	1%	1%	41%	60%	30%
Total	100%	101%	99%	N/A			N/A	100%

Summary of triangulated Regional findings for selected sectors

Sector	Reverse Intensity			Normal Intensity (As UK)			% of total workers outside of selected SOC area	% of EE total selected sector employees working within sector
	SOC 3411	With All Related SOC's	With Closely Related SOC's	SOC 3411	With All Related SOC's	With Closely Related SOC's		
Animation	10%	11%	1%	4%	17%	24%	98%	2%
Computer Games	0%	0%	3%	1%	1%	41%	97%	3%
Interactive Media	65%	20%	89%	1%	1%	41%	21%	83%
VFX	25%	70%	7%	1%	1%	41%	84%	12%
Total	100%	101%	100%	N/A			N/A	100%

Please see USB for the following Appendix:

Appendix 5.36

TCR_vs_Mint_Confidential.pdf **(confidential and provided only for examination purposes)**

Chapter 6

Please see USB for the following Appendix:

Appendix 6.1

soc2010indexversion5.116august2016 (Please see new entries tab; cells 63-70)

Appendix 6.2

Postscript: Future Research

As an educator it has become ever more crucial to me to ensure our students understand the landscape of the sector they are about to enter. This enables them to make informed choices in relation to specialist skills they wish to pursue during their time on the course, which they demonstrate and disseminate through their portfolio and showreel upon graduation. This need for accurate and informed data on the sector has been a key driver to this project, meaning that the course is delivered with the best possible currency. Over 90% of the Animation workforce are reported to have an undergraduate degree or higher qualification and although this figure only relates to those working in the animation industry, it does give some benchmark for the general landscape of the importance of HE in the animation sector. As outlined within Chapter Two, its workforce defines the animation sector and therefore the impact of education providers on the sector cannot be ignored. The UK has 83 institutions offering specialist undergraduate courses in the study of animation (from UCAS web portal 20/01/15) consequently an understanding of the destinations of these graduates is crucial to the maintenance of the sector and courses. Through the process of this research it has been established that the Higher Education Statistics Agency collect data on graduate destinations and classify them using SIC and SOC codes. The majority of this data can be found through the HESA Destinations of Leavers Survey (DLHE), where some SOC 4-digit unit groups are unusually further divided by HESA into 5-digit subgroups:

The 5-digit codes were first introduced for DLHE in early 2000s. SOC 2000 classification was adapted specifically for DLHE to allow for more detailed coding in areas where the standard version did not provide enough detail to record accurately the jobs undertaken by graduates. (Ritva Ellison, Senior Project Assistant, IER, 17/03/15)

As noted by Ritva Ellison, this addition to the classification is only used by HESA and confirmed by Michaela Morris (Occupation, Social & Country Classifications Helpdesk Manager, ONS) not used in any other official government data sets. Following the introduction of SOC 2010, HESA undertook a review (IER, Feb 2012) in which a number of areas were identified, where in its standard form, would result in a loss of data. Those areas were analysed further in order to make recommendations about the additional detail that was required. As a result, ten unit

groups were identified for SOC2010 (DLHE) where subdivision was beneficial. Based on this investigation, the following relevant recommendation was made:

34211 Graphic designers

34212 Commercial artists

34213 Exhibition, multimedia designers

34214 Desktop publishing assistants and operators

34219 Graphic design copyists and setters-out

(IER, 2012, p.11)

This is a welcome addition to the SOC approach and while SOC 3411 Artists still remains the same, it is hoped that future iterations will recognise that similar problems exist in the ability to distinguish between the varied role descriptors situated within other creative industries' relevant codes (Appendix 6.3_ UKSOC2007_3411_JobTitles). In the meantime, as with industrial data, the acknowledgment of animators within graduate data remains compromised.

Creative Skillset have begun their own work, collating information about learners on their own accredited courses through an online portal (Creative Skillset, March 2015). Within discussion with the team working on this (Rachael Keene and Stephen Grey 16/04/15) it has been acknowledged that correlation with data from the Higher Education landscape for the purposes of comparability is 'disparate and complex'. To date, they have identified levels of employment within each sector of employment for Tick Graduates demonstrating the following:

- If they are employed in the sector they trained in
- If they are employed in the Creative Economy
- If they are employed

(CSS, March 2015, p. 7)

Each of the 173 Ticked HE courses across the UK was classified by Creative Skillset into a sector by its Joint Academic Coding System (JACS) code used for subject coding at HE level. For the animation sector, 30% of graduates are employed in the Animation

sector. 95% in the creative economy and 100% are employed (Creative Skillset, March 2015, p. 7). The survey does not consider occupations and reflects only on data at UK level. There is no analysis of the occupations graduates are employed within the animation sector or if they are employed outside the animation industry within the creative or wider economy as animators.

Through further work I would like to create a comparative analysis for the UK applying a similar approach to that undertaken within this research:

- How many graduates are employed as animators?
- How many come from animation courses?
- What other courses do animators come from?

I would like to map regional movement of graduates from animation courses to employment and contextualise this within the current status of the UK animation industry employment and possibly regional sector. Through the design of this research I would like to once more apply the *Creative Trident* approach, reviewing the available data in the following format

Animation Courses	Animators	
	Animators from Animation Courses	Animators from other courses
	Other occupations from Animation Course	Other occupations from other courses

(i): The *Creative Trident* Model applied to Animation Graduate Research

I have already engaged in discussion with HESA and have been granted access to ‘Destinations of Leavers in Higher Education’ (DLHE) data from the past 5 years (2009-

2014) to allow for comparison with the 2009 sectorial data extracted within this project along with my own institutional data. The next stage will be to put a proposal together with a view to seeking funding and potential collaboration.

Interview Consent Forms

RESEARCH ETHICS: INTERVIEW CONSENT FORM

Full title of Project: The Infrastructure of the Animation Industry in the East of England

Name and contact address of Researcher:

Jodie Wick
Norwich University of the Arts
3-7 Redwell Street
Norwich.
NR2 4SN

☐ Tick Box

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|----|--|-------------------------------------|
| 3. | I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. | <input checked="" type="checkbox"/> |
| 4. | I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason. | <input checked="" type="checkbox"/> |
| 3. | I agree to take part in the above study. | <input checked="" type="checkbox"/> |
| 8. | I agree to the use of quotes in this thesis. | <input checked="" type="checkbox"/> |

Date of interview: Via Email 5th March 2008

Damian Gascoigne

Consent given by email 21/09/15

Name of Participant

Signature

Jodie Wick



Name of Researcher

Signature

RESEARCH ETHICS: INTERVIEW CONSENT FORM

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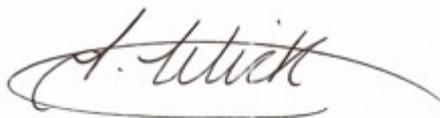
Date of interview: Via Email 5th March 2008

Hedley Griffin

Email permission given 19/08/15

Name of Participant

Signature



Jodie Wick

Name of Researcher

Signature

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- 13. I agree to the use of quotes in this thesis.

Date of interview: _____
Via Email 18th March 2008



Saint John Walker

Name of Participant

Signature



Jodie Wick

Name of Researcher

Signature

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› **Tick Box**

9. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. y
10. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason. y
3. I agree to take part in the above study. y
14. I agree to the use of quotes in this thesis. y

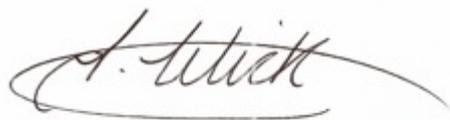
Date of interview: Via Email 3rd March 2008

Stephen Hunt
Steve Hunt Principal lecturer programme leader Digital Animation, university of Hertfordshire.

Name of Participant

Signature

Jodie Wick



Name of Researcher

Signature

RESEARCH ETHICS: INTERVIEW CONSENT FORM

Full title of Project: The Infrastructure of the Animation Industry in the East of England

Name and contact address of Researcher:

Jodie Wick
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Use Tick Box

- 10. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. Y
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- 3. I agree to take part in the above study. Y
- 15. I agree to the use of quotes in this thesis. Y

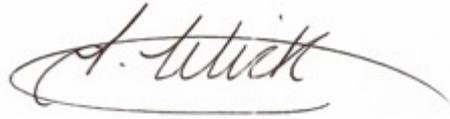
Date of interview: Via Email 2nd April 2008



Steven Kirby

Name of Participant

Signature



Jodie Wick

Name of Researcher

Signature

RESEARCH ETHICS: INTERVIEW CONSENT FORM

Full title of Project: The Infrastructure of the Animation Industry in the East of England

Name and contact address of Researcher:

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| 16. | I agree to the use of quotes in this thesis. | <input checked="" type="checkbox"/> |

Date of interview: Via Email 3rd April 2008

Note: Please just make sure my name is attributed and published was happy to help.

Tammy Ellis

L.- T- Ellis Date signed 17 /08/ 2015

Name of Participant

Signature



Jodie Wick

Name of Researcher

Signature

RESEARCH ETHICS: INTERVIEW CONSENT FORM

Full title of Project: The Infrastructure of the Animation Industry in the East of England

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| 6. | I agree to the use of quotes in this thesis. | <input checked="" type="checkbox"/> |

Date of interview: Via Email 3rd February 2008

Peter Parr

Name of Participant



Signature

Jodie Wick

Name of Researcher



Signature

