



International Forum of Design as a Process

The shapes of the future as the front
end of design driven innovation

5TH INTERNATIONAL FORUM OF DESIGN AS A PROCESS

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ADVANCED DESIGN CULTURES:

The shapes of the future as the
front end of design driven innovation

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Self-production and craft: advanced processes towards social innovation

Abstract

This paper analyzes some self-production and craft processes which can contribute to social innovation. Object of this research is the concept of self-production, considered as a human-centered design process held by a designer-maker who, working within a community of artisans or a platform of digital fabrication, manages the entire process, from design, to production, distribution and communication.

This research covers a broad spectrum of material that relates to the changing landscape within the design world and beyond, drawing the heterogeneity and complexity of self-production. Diverse approaches developed in the contemporary design scene have been mapped, defining new relationships and highlighting peculiarities, strengths and weaknesses. Linking these diverse approaches is the new role of the designer, who embraces wider areas and acts as catalyst of social innovation, actively involving diverse actors in the design process. Such a figure embodies both the designer's knowledge and the maker's know-how, implementing either artisan productions or digital fabrications, shared within a close relationship with craft communities or virtual platforms for Do-It-Yourself.

Self-production seems to be not an anachronistic situation, but an interesting opportunity, which addresses the increasing demand for flexible and diversified productions, able to connect local realities with global markets. Such an approach seems to provide young designers with a viable opportunity to start from the bottom, opening up new start-ups on their own to counter the current crisis of the work world. Design can be a key guide for transforming the current scenario into an advanced craftsmanship. It has to rescue its social and economic relevance and foster local innovative initiatives that seek social innovation and sustainable development of a territory.

Keywords

Self-production, Craftsmanship, Digital Fabrication, Social Innovation, Sustainability.

The framework: social innovation and sustainability

Nowadays, the practice of design is more and more linked to social innovation and sustainable development. The development of self-production is closely interwoven not only with technological aspects, but also with social ones, that is to say changes in behavior, emerging through bottom-up organizational processes. Design has become the key tool to transform human needs and desires into innovative and sustainable products, services and systems (MANZINI, 2008). Aiming at social innovation, the new designer's role is to foster the development of "creative communities", (MERONI, 2007), groups of people who collaboratively invent, enhance and manage innovative solutions to new sustainable lifestyles. The designer plays a role of enhancer (understanding communities' creative ways of organizing) or producer (enabling improvements in knowledge, tools and techniques). The designer should change the focus of his activity, placing the man at the center of the project, not shaping new products but enhancing human interactions. Design should come back to a human scale and a strong connection to the territory should be reacquired.

Aiming at sustainability (intended as a holistic environmental and social issue), "systemic design" should be applied to self-production processes. This means making the output (wastes) of a

production system become the input (resources) for another (BISTAGNINO, 2011). These reduced wastes generate new and improved processes, increasing economic fluxes and creating jobs. Systemic design intends also to make self-production processes into a local network which enhances human, cultural and material resources of a territory, cutting down logistic costs and environmental impacts. Finally, in terms of economical sustainability, self-financing own activities implies, in most cases, an extreme attention to product economy and efficiency, i.e. achieving the maximum result with the minimum use of means, both material and productive.

Self-production, and beyond

Self-production represents the act of “mediation between areas of knowledge” (CELASCHI, 2008), a bridge between craftsmanship and industry, carried out by designers able to interact with diverse figures throughout the design process. In a process of self-production, the designer may become art director leading craft production process to develop mindful projects.

Nowadays, the designer is no longer focused on the final product, but on developing strategies, services and systems. He is no specialist in a specific kind of production, but rather manages all the aspects of an enterprise, from design to production, distribution and communication. By handling diverse aspects of the process, the designer can develop a more mindful and integrated approach to the project, increasing his value in terms of reliability and professionalism.

The artisan designer emerges as a response to the current crisis in the work world, marked by the limits of Fordist mass production model, outsourcing of production processes and lack of development in the service sector. Such a figure combines technical expertise and artistic ability to develop innovative craft. In summary, the intent of self-production is not to propose a nostalgic return to a regressive craftsmanship, but rather to explore and experiment handicraft methods to be applied at larger scale, in diverse fields (PASCA, TRAPANI, 2001).

Among young designers, the tendency to aggregate in a collective in order to attract the attention of the media, manufacturers, retailers and the society is becoming more diffused. The ideal scenario would be the development of a well-structured design community, a network of professionals who work cooperatively, with appropriate upstream support and financial basis, both private and public.

Recently, the need to personalize products has led to the development of a series of mass customization practices. This approach can assume different facets. Sometimes, it is a designer who provides the user with tools, tool-kits and information in order to enable self-production of objects. Otherwise, projects are shared within a virtual network, downloaded and 3D physical objects are printed from a digital model at home. Furthermore, when objects will no longer be useful, they might be recycled for manufacturing new ones. Such a development strategy has been supported by worldwide services, e.g. the Maker Faire (the exhibition of hardware inventors, mainly based in the U.S.) and the proliferation of FabLabs that allow producing unique pieces by means of smart systems and open hardware.

Among the advantages offered by digital fabrication, it is worth to highlight formal freedom, low costs for producing unique items or small series of products, low investments to access production. On the other hand, the “new makers’ revolution” is becoming just a fashionable trivialized label: makers are often amateurs, with no design knowledge or awareness. Designers should acquire widespread responsibility, looking carefully at the potential of technology and its implications with human values to meet society’s demands.

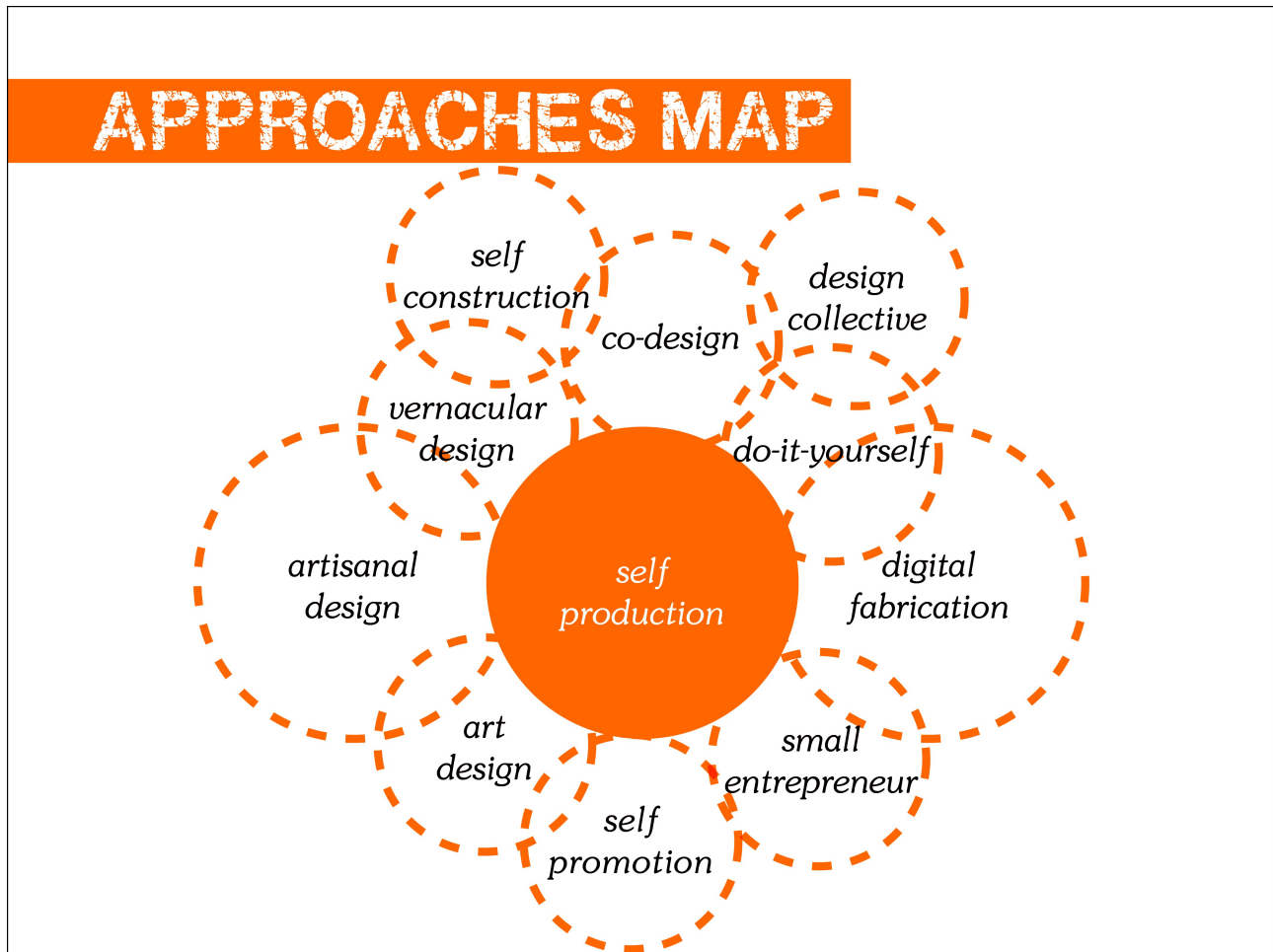


Fig 1. The complex map of self-production approaches, from artisan design to digital fabrication.

Worldwide approaches

The theoretical analysis drawn up to now lays the foundations of a critical analysis of worldwide case studies in the Netherlands, Brazil and Italy, which are very different, but at the same time equally exemplary approaches to self-production. Through field research conducted in such territories, theoretical review has been applied to real examples, getting an empirical knowledge of the international scene. Such an analysis is linked with design processes for promoting positive human interactions and qualities of experiences at a local level, and with the capacity of digital technology to introduce economies of scale. Best practices has been derived, proving how self-production can demonstrate any improvements in critical measure of sustainability in specific contexts. The aim is to produce a critical review of the potential for sustainable contemporary self-production, defining its social, cultural, environmental and economic impacts.

Italy: analogical/digital micro-entrepreneurship

In Italy self-production arises in the middle between analogical and digital models, due to its territory with long craft tradition, but already opened to welcome influences from digital fabrication. The Italian *“peculiar productive structure is made of a dense network of artisans and small industries scattered throughout the territory”* (FERRARA, 2011). According to the European statistics institute Eurostat, in Italy 99,4% of the total enterprises are micro and small-size, while 0,5% are medium and 0,1% are large enterprises. (fig. 2). Self-production represents a solution through which emerging design is trying to remedy years of a structural lack of a design system

which has placed Italy in a situation of delay – if not of disadvantage - compared to other European countries.

By breaking the cultural barrier between designers (who convey the culture of design) and craftsmen (carrying the culture of doing) it is possible to realize design-driven innovation. A good area of intervention for Italian self-producers is represented by museum merchandising. In fact, Italy is rich in museums, which are privileged places to design, produce and sell local identity souvenirs, objects with a strong link to territory. Mindful museum merchandising could be an effective lever for local tourism, enhancing economic, social and environmental development (MAZZARELLA, 2013).

The dialogue between young designers and micro and small enterprises should be easy and direct; it could lead to the return of the synergy between design and industry which has characterized the history of Design Made in Italy. The challenge is to create a design system which involves universities, professionals, institutions and enterprises towards sustainable development.

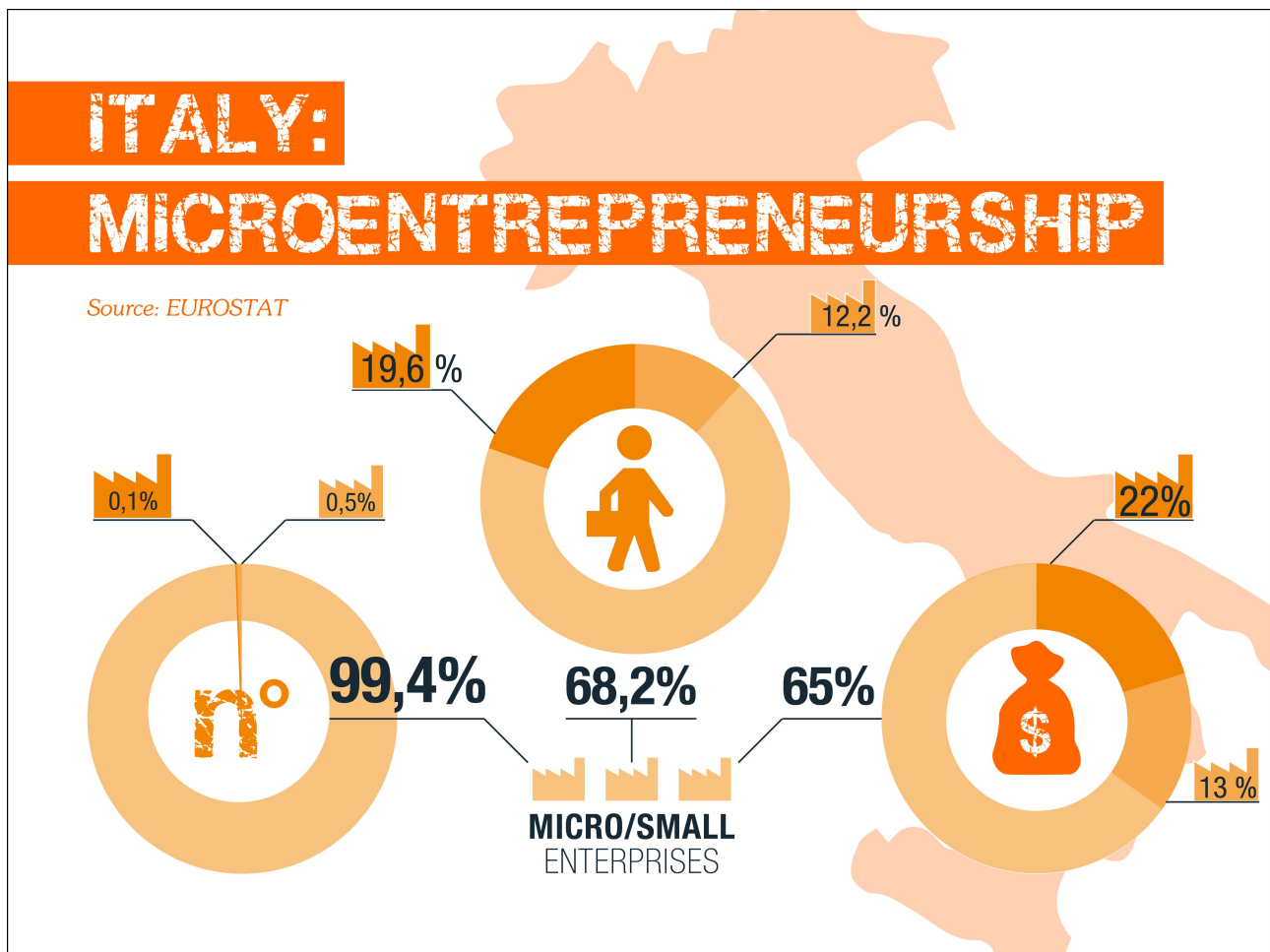


Fig. 2 The Italian productive scene is almost entirely characterized by diffused micro-enterprises, which employ 68,2% of the national workforce and generate 65% of the total turnover. Source: Eurostat.

The Netherlands: experimental digital fabrication

In the last years, the Netherlands were confirmed as one of the most vibrant countries in the design world, and perhaps the most attentive to young designers' needs and potentials. Dutch environment is one where self-production has risen for first, within the overall Arts & Crafts movement coming from Northern Europe. Dutch designers make use of complex digital fabrication techniques and are

supported at many levels by a public, cultural and ideological system (MAZZARELLA, PERUCCIO, 2013).

It has created a fertile ground for an original emerging design with international ambitions, focused on research and experimentation. Self-production is not experienced as a way to stay alive, but rather as an opportunity to experiment new ideas and make things. In general, Dutch self-production follows such a process: design, self-production of experiments and sale to industries to be produced in large scale.

The link between Dutch self-production and social innovation is not proved. Dutch design can still be considered at an experimental stage and not deeply affecting society. Sometimes, Dutch self-made products are not really good quality and cannot be produced by industry, but they are great sources of inspiration for innovation. Moreover, in the last ten years it has been developed an astonishing number of independent design experiences. It emerges the need for designers to join a community and co-work, in order to optimize the use of resources and achieve stronger visibility.

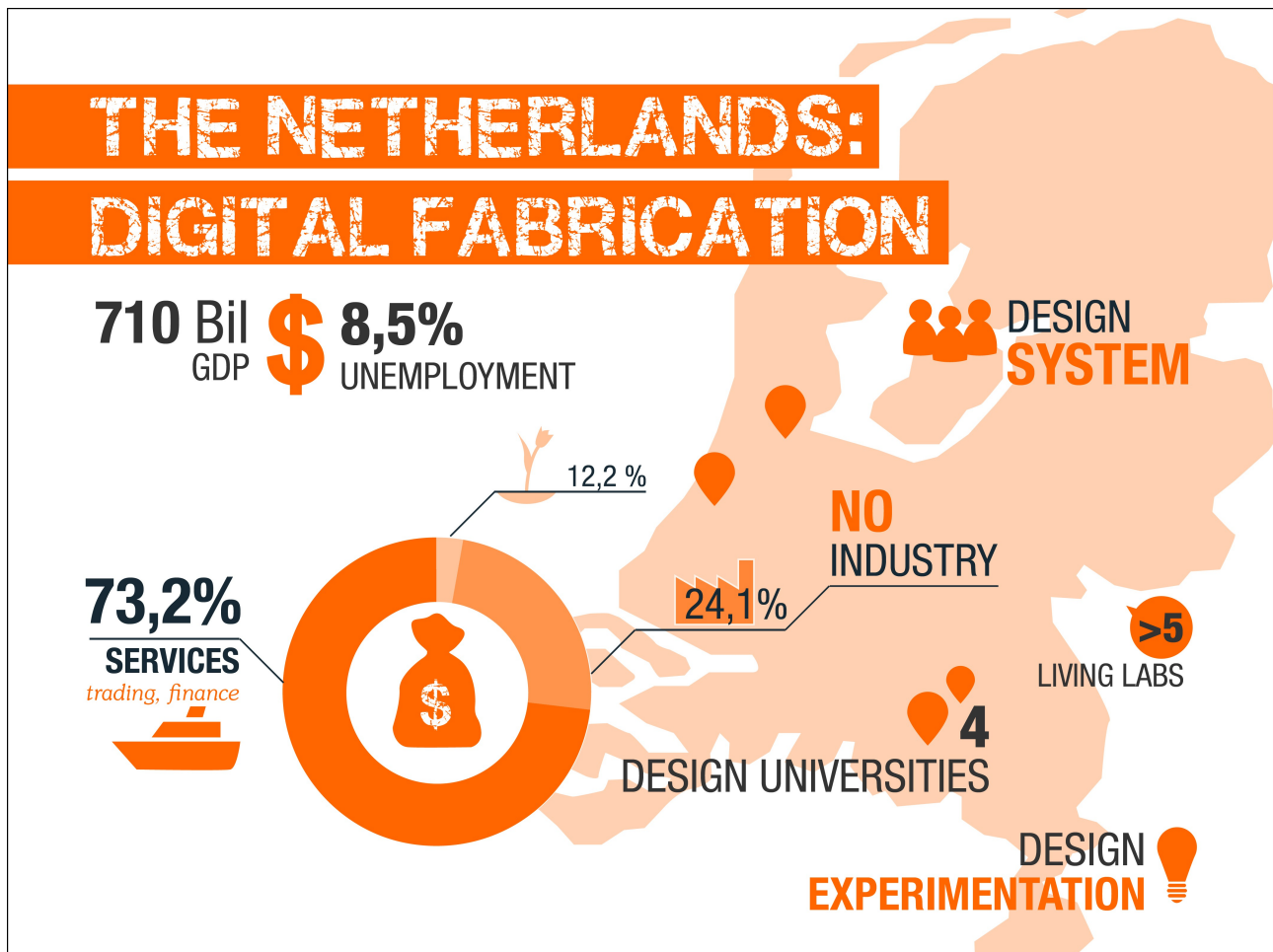


Fig. 3 In the Netherlands self-production is linked to digital fabrication and design experimentation. It is supported by a solid design system, characterized by the economy of services (73,2%, against the weakness of the industrial sector), world-leading design universities and living labs, generating high employment.

Brazil: artisans' communities

In Brazil self-production is often linked to craftsmanship to rescue local traditions and identities. It is an attempt to operate a fusion of modernity (intended as geometric and chromatic abstraction) and “Brazilianity” (conceived as diffuse use of colours, research on materials and a playful design approach).

Nowadays, in Brazil industrial production is still weak in some sectors and the design culture is not very widespread. It is difficult to establish a fruitful collaboration between designers and industries, more devoted to imitate foreign models than carrying out design research. Some designers approach self-production as an aware choice, moved by the will to join design thinking with manual skills; others are “pushed” to self-production to freely express their creativity.

Brazilian craft is characterized by being handmade. This distinguishes it from European craft, which generally makes use of advanced technologies, laying on the borders with small industries. Craftsmanship is characterized by the use of local raw materials, low techniques (passed down through generations) and workforce commitment.

According to Mourão (2013), in the latest decades, craftsmanship has obtained a prominent position within the Brazilian economy due to several factors: stability of the national currency, changes in the industrial and commercial sectors, strengthening of micro-enterprises, diffusion of internet and diverse social achievements. As shown in figure 4, craftsmanship handles approximately € 18 billion per year, being one of the top five contributors to Brazilian GDP. Handicraft is the cultural activity with the highest rate of occurrence (64,3%) across the 5.564 Brazilian municipalities, serving about 8,5 million of artisans, 85% of whom are women (BORGES, 2011). In Brazil some organizations have been developed to improve craftsmanship at cultural, social and economic level, such as the SEBRAE (Brazilian support service for micro and small enterprises).

Extremely relevant are social transformations caused by the development of artisan activities. Thanks to design and government support, health conditions get improved, as well as self-confidence, pride of one's origin, work and life. Artisans spontaneously join communities, developing collaborative production and commercialization methods and acquiring the notion of belonging and higher political awareness. People get a clearer view of their rights and are freed from donation logic. Artisans generally show a deal of affection for the designers they have worked with, and this gives great satisfaction to the designer as well. As a consequence of craft re-qualification programs, artisans can return to their hometowns and achieve a quality of life that before could be conducted only in large cities. It leads to a reversion of migratory flows from urban areas to rural ones, re-establishing closer relationships with the territory. Furthermore, in order to sell their products, some artisans are stimulated to travel, widening their horizons.

Brazil is witnessing a trend in the consumer market in valuing unique products with cultural identity and committed to ethics, sustainability and social responsibility. By applying design methodologies to craft production, it seems possible to add symbolic value to self-made products and get a significant increase in market value, making self-production more sustainable.

Unfortunately, Brazilian craft still presents several problems in terms of amount of items that can be produced, lack of professionalism (that often results in poor product finishing), considerably longer delivery times and low economic resources to invest on production.

New entrepreneurs should be fostered to use available resources, suitable for each region. By exchanging goods and services between sectors (systemic network of resources) and sharing trading spaces (online platforms), new micro and small entrepreneurs could develop innovative products and services. In order to reach high level and coexist with industry, crafts production has to follow quality standards which make products repeatable and recognizable as result of design thinking.

Barroso Neto (1999) points the need of a systemic and articulated action which should embrace education, information, culture. In the long term, it could lead craft to a position of social relevance and economic sustainability.

It is also worth to notice that the craft business is strongly connected to another sustainable industry: tourism. Collaboration of designers and artisans can create mindful products and services enhancing local crafts and economic development.

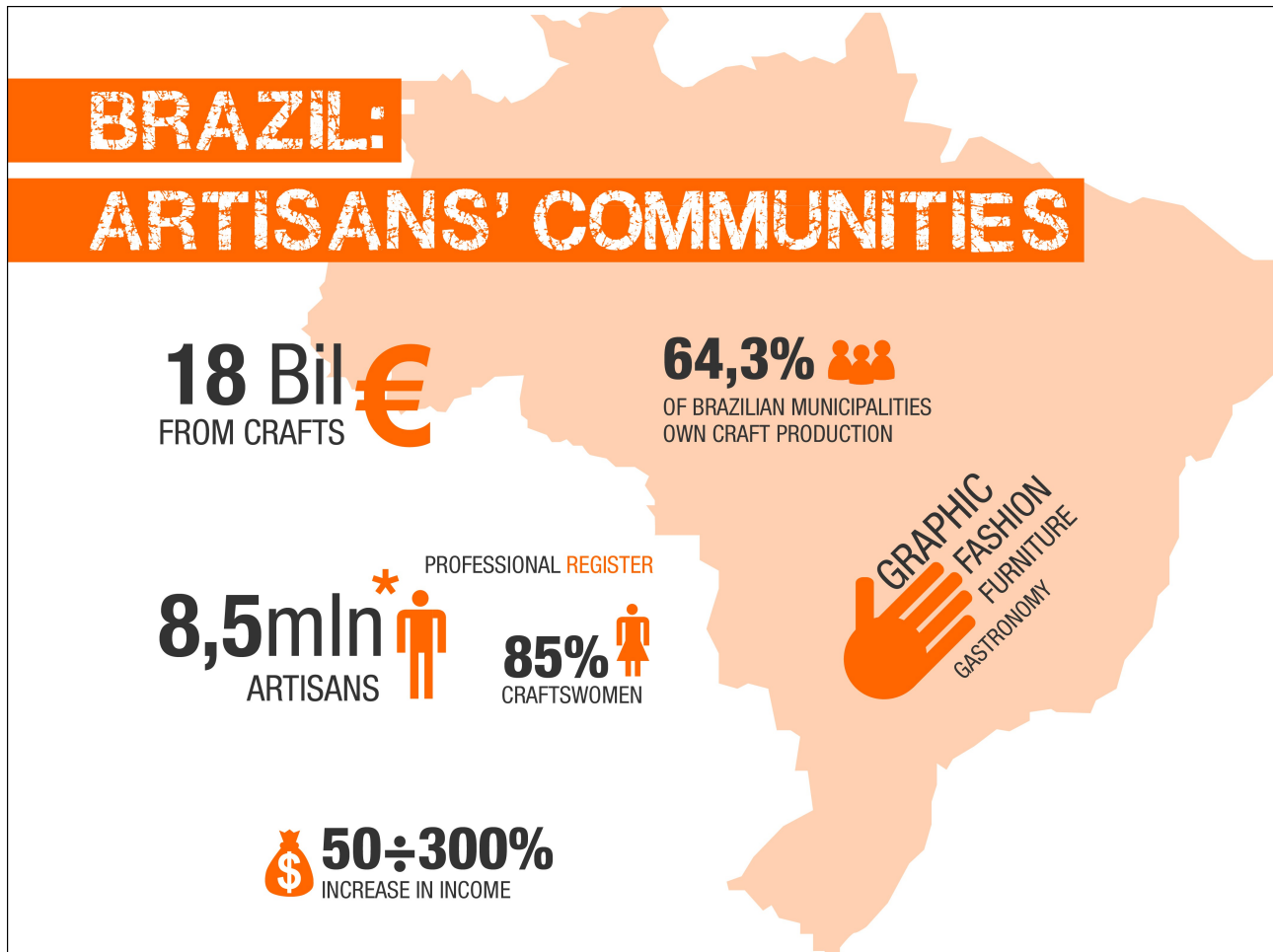


Fig. 4 The relevance of artisans' communities in Brazilian economy and its main sectors (graphic, fashion, furniture and gastronomy).

Example

An example of design-driven innovation is the participatory design experience the authors have conducted with the artisan community of São Sebastião das Águas Claras (known as Macacos), in Minas Gerais, a territory with large but unvalued tourist potential. The Program named “Comunidades Criativas das Geraes” (CCG) is an university project developed within CEDTec at the Universidade do Estado de Minas Gerais (MARTINS, ENGLER, 2013).

The goal of this co-design program is to empower artisans to create products with higher added value by strengthening cultural identity and promoting local tourism. A group of designer has shared the design methodology with an artisans' community during several collaborative activities. The production processes adopted make use of low resources, low technologies, low budget. The designers have stimulated artisans' entrepreneurship and they have opened a shop to self-manage local sales, facilitating logistics and transport and creating a direct contact with consumers, which has supported further product improvements. With time passing, the community of artisans got stronger to the point that the Municipality of Nova Lima (with the support of public institutions) has decided to establish a weekly fair of typical producers, which has become a tourist attraction.

The CCG program has proved how design can foster social innovation in a territory, strengthening relations among community members and making the group sustainable. As a consequence of the designers' intervention, the territory has been valued, becoming a pole of reference for crafts with added value. From an environmental perspective, the designers' team has stimulated artisans to use raw materials abundant in the territory, adopt sustainable practices, such as waste sorting, recycle

and reuse of production wastes. On the other hand, the path ahead is still very long and the design area of intervention is very wide. In fact, a more severe selection of products to be sold in the shop is necessary, suitable packaging has to be designed, production, selling and promotion have to be better managed.

Strengths and weaknesses

The analyzed scenario has proved that self-production guarantees full freedom of experimentation and flexibility. It is easier to start new productions, as no high technological investments are necessary. Limited self-production on demand allows to scale production on real needs, avoiding planned obsolescence and risk of unsold, cutting down stocks and wastes. Self-producers independently manage design, production and sales, without being submitted to industry constraints. Digital fabrication permits maintenance and repair of objects, extending their lifetime. Self-made objects establish with their user an affection relationship, which should be more durable and sustainable than passive consumption. Processes are more traceable and controlled in environmental terms. Because the distance between gathering raw materials and their transformation is generally short, little energy is required for transporting supplies and finished product. By sharing projects in open design platforms, design creates a network, fed by the society, which contributes to continuous improvement of projects.

Certainly, there is also another side of the coin. Nowadays, thanks to digital fabrication techniques it is easy to produce large amounts of models and prototypes that become wastes in the end. Self-production implies greater risk of failure and limited financial resources, compared to traditional design integrated in industry logics. Self-producer generally makes use of limited technologies and not advanced materials; as a consequence, product finishing is generally rough. Sometimes, the result of the new makers are “weak gadgets”, incomparable to industrial design in strict sense. It is needed to explore the potential of self-production into new segments and spread the culture of self-production, primarily within universities, where young designers are trained, valuing handicraft techniques. Generally, one of the main issues is the lack of commercial skills for production planning and sale management. Moreover, self-producers have usually scarce resources to invest in promotion and communication. Finally, in an independent design process, networking is generally difficult and this makes challenging to reach an effective social impact.



Fig. 5 Synthesis of pros and cons of self-production processes.

Towards sustainability and social innovation

In the current times of crisis, self-production seems to be an significant process towards sustainable development, preserving the environment, expressing cultural identities and improving the quality of life for the people who produce and consume such mindful products.

By adopting local raw materials and re-locating production at human scale, such a change could also be economically successful. Industry should adopt, if not single material, at least an advanced approach of “Design for Disassembly”. Moreover, by adopting new digital fabrication technologies, it should be fostered “Design by Components” of objects ease to assemble, maintain and repair, as well as dismantle at the end of life, facilitating recycling (LANZAVECCHIA, 2012).

The future of self-production is likely a return to a local dimension, based on a synergy between design, craft and industry, creating great commercial opportunities in new glocal markets. The designer can provide artisans with methodology, exploring new areas, improving craft productions with competitive traits and guiding innovation. Artisans represent a valid point of reference for designers, in terms of local identity and traditions, as well as manual and technical skills.

The international scene explored has proved the need to create an enabling ecosystem to support and develop self-production and craft processes. The road ahead is still very long, but a shared project, which actively involves at multiple levels all actors of the design scene (therefore communities, public institutions, universities, producers, distribution and communication platforms) may contribute to the sustainable development of the territory.

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