Cleantech incubators within the sustainable entrepreneurial ecosystem: Fundraising sources, income generation strategies and the role of public support

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Key message: *Most cleantech incubators rely on public funding, but fundraising and income diversification strategies are requirements for securing financial viability.*

Abstract

This paper explores the different financial viability strategies adopted by cleantech incubators located in both high-income and medium- and low-income countries. More specifically, we focus on three interrelated research questions: (i) What are the most common funding sources for cleantech incubators (CTIs) and how do they differ between high-income and medium- and low-income countries? (ii) What income generation strategies do they employ to achieve financial viability? (iii) What appears to be the main influence on whether or not a CTI adapts suitable strategies to achieve financial viability? The study uses data from 71 cleantech incubators and interviews with 11 cleantech incubator managers. Although the vast majority of the examined cleantech incubators rely on public funding, our results suggest that high levels of fundraising and income diversification strategies are requirements for securing financial viability. In addition, higher levels of government involvement appear to correlate with fewer income diversification strategies, whereas lower levels of government involvement increase the likelihood of the incubator's proclivity to pursue different fundraising and income generation revenues.

Keywords: Business incubators, cleantech, startups, medium and low-income countries, public policy

JEL classification: L26 Entrepreneurship; M13 New Firms, Startups; O32 Management of Technological Innovation and R&D
EFM classification: 800 Small Business; 810 Venture Capital

Key points:

- The paper explores financial viability strategies used by cleantech incubators in different income level countries.

- The research focuses on three main questions related to funding sources, income generation strategies, and influences on financial viability.
- Public funding is commonly used, but fundraising and income diversification strategies are essential for financial viability, and government involvement can influence these strategies

1. Introduction

In the late 1970s and especially in the 1980s, business incubators became an important policy tool in the United States, as local and state governments sought to support declining industrial regions by promoting the establishment of business clusters (OECD 1999). They also gained significant ground in European countries and received particular attention from policymakers. In general, business incubators have been viewed as critical elements in entrepreneurial ecosystems (Cohen 2006; Klofsten et al. 2016; Bank et al. 2017; Spigel 2017; Nicholls-Nixon et al. 2021), and they have become a "*popular policy option and economic development intervention tool*" (Lasrado et al. 2016, p.205).

Business incubators have been often characterised by a sectoral focus on the development and diffusion of various technologies such as information technologies, biotechnology and clean technology (or cleantech) which consists of renewable energy technologies, including solar energy, wave energy and biofuels (Usher 2008). Cleantech startups typically exhibit superior technological capabilities compared to other startup sectors. Jensen et al. 2020 observed that Cleantech ventures are inclined to innovate by combining existing technologies in unique ways and tend to introduce more market innovations over subsequent years compared to their counterparts in other sectors. This is mainly due their emphasis on ongoing research and development (R&D) initiatives, the acquisition of patents, their business strategy and the background of its founder.

Several governments worldwide have set ambitious targets to reduce greenhouse gas emissions and increase renewable energy volumes. To meet these goals, they employ various policy approaches, including sponsoring cleantech incubators (referred to as CTIs hereafter). Like most government interventions, the aim is for the sponsored entity to become self-sustaining in the future, allowing for the withdrawal of public support (Colbert et al. 2010). Therefore, achieving financial viability is one of the most important but challenging tasks facing incubator managers, especially in the cleantech industry, which inherently demands substantial funding and resource requirements (Tukker and Tischner 2017; Adams et al. 2016; Shakeel, S.R., 2021)

To date, limited attention has been paid to the business-development side of cleantech development. CTIs in particular, are a relatively new phenomenon that so far has remained under-investigated (Gaddy et al. 2017; Wang et al. 2020), despite the growing importance of the cleantech industry as a whole (Bank et al. 2017; Jensen et

al. 2020.). Research on the nature of the funding resources provided to the business incubator has also been limited (Breivik-Meyer et al. 2020), and no previous research has been done to understand the strategies employed by cleantech or sustainable incubators as they strive to remain financially viable (Bank et al. 2017). In addition, further research is needed to understand the role of public policy in pursuing sustainable goals and how the adoption of various policies and strategies may positively influence sustainable entrepreneurship.

Overall, the literature lacks detailed exploration of how CTIs secure funding and implement appropriate income generation strategies within the regional entrepreneurial ecosystem. Furthermore, researchers have given scant attention to how CTIs conduct fundraising and income generation activities in countries with diverse institutional contexts and levels of economic development (Surana et al. 2020). This gap in knowledge is notable. Hence, the primary objective of this research is to address this gap by examining how CTIs secure funding and implement effective income generation strategies within the regional entrepreneurial ecosystem across both developing and developed markets.

In this context, the paper explores three interconnected research questions: (i) What are the predominant funding sources for cleantech incubators, and how do they vary between high-income and medium- and low-income countries? (ii) What income generation strategies do they utilize to attain financial viability? (iii) What are the primary factors influencing whether a CTI adopts appropriate strategies to achieve financial sustainability?

Exploring how CTIs achieve financial viability within the entrepreneurial ecosystem holds potential to enhance both theoretical understanding and practical applications. This study contributes to the literature on sustainable entrepreneurial ecosystems by identifying factors influencing the extent and nature of financial support received by CTIs and by developing a typology of cleantech incubation models. Given that CTIs typically require substantial capital investment (Adams et al. 2016), a more precise typology should focus on sponsoring entities, the primary funding sources. Additionally, this research aims to offer insights to current and prospective CTI managers regarding challenges in fundraising and income generation strategies. It also provides valuable guidance to governments, local authorities, international donors, and large corporations interested in establishing CTIs.

Our research design involves examining CTIs in both developed and developing markets as there are clear differences between those two groups in terms of both, the type of institutional investors engaged with sponsoring incubation activities and also the impact of such activities in the local entrepreneurial ecosystem. Overall, incubators in less developed economies have received considerably less attention by researchers, despite the clear contrasts in the role of incubators in industrialized and developing countries (Surana et al. 2020). Existing research also suggests a potential trade-off

between profitability and outreach, particularly notable in business financial support organisations operating in developing countries, where they tend to be less profitable (Abdelkader et al. 2023). Several authors underscore the direct beneficial impacts of FDI on Sustainable Development Goals (SDGs) in developing countries, while others delve into the ethical dilemmas associated with business expansion in areas lacking sufficient protection for local communities (Pizzi et al., 2020). Therefore, we extend the empirical reach of the literature by studying how specific types of CTIs fundraise and generate income in countries with different institutional contexts and level of economic development.

The remainder of the paper is structured as follows. First, we review the related literature to identify the point of departure for our research. Second, we explain the methodology that guided our data collection and analysis. Third, we identify funding sources and the different income generation strategies, resulting in a typology of six CTIs. Fourth, we discuss our research findings and the role of public support in cleantech incubation activities. Finally, we present some recommendations for both policymakers and industry practitioners.

2. Literature Review

2.1 Business incubators

Since the concept of a business incubator emerged in the early '70s, it has gained significant currency among both academics and policymakers. However, certain ambiguities still exist at the conceptual level, including definitions, sources of funding, accepted classification, incubation process, and outcomes. The National Business Incubator Association (NBIA 2012) defines an incubator as a business support process that accelerates the successful development of startup and fledgling companies by providing entrepreneurs with an array of targeted resources and services.

Incubators vary with respect to structures, support services and operational processes, but they generally share a common purpose "*to promote entrepreneurship, innovation, the creation of new firms and economic development*" (Theodoraki et al. 2018, p. 154), by offering meeting places, open spaces that allow interactions among incubates, information meetings, social activities, office space, web portals and newsletters (Aaboen 2009; Vaz et al. 2022).

Such services and their interlinked objectives are not homogeneous across different types of incubators, and several attempts have been made to classify incubators based on their objectives and services they provide. Most of the existing classifications are based on the way incubators operate their businesses. However, Mrkajic (2017) argues that their choice is contingent on the incubator sponsors, i.e., the affiliation of the incubator, mainly through available resources and imposed objectives.

The rapid development of new technology and short life of many products, combined with intense competition means time to market for ICT products is often very short (Tukker and Tischner 2017). In contrast, cleantech startups will often require significant capital upfront and a long period of development before their product reaches the market. Developing cleantech products and services requires expensive equipment, long laboratory trials, and even longer commercialization cycles and that makes cleantech incubation more capital intensive, slower, and riskier than in most other sectors (Adams et al. 2016).

Government policies often have a direct impact on increasing private investments in the sector (e.g., taxes, R&D subsidies, etc.), while public investments in the sector are mainly driven by a country's commitment to reach environmental targets (Croce and Bianchini, 2022).

Since the main customers of incubators are startup companies, which are typically cash-strapped and unable to pay for the services they receive, incubators need to identify alternative ways of generating income. Not-for-profit incubators often have a main financial sponsor such as a local council or a university that provides significant financial support (Prince and Beaver 2007). Commercial or for-profit incubators are generally supported by large corporations or independent entrepreneurs. Since they are often established without the constraints of fitting into an existing organization, there is more freedom to develop an efficient incubation model.

According to USAID and Deloitte (2012), a wide range of funding opportunities exists for business incubators, including volunteering contributions, financial contributions, individual contributions of entrepreneurs in exchange for reductions of rental fees and office services, resident payments, support from state funds, local loans, and guarantee funds. Colbert et al. (2010) suggest that self-sustaining business incubators tend to rely on multiple sources of revenue generation and avoid relying solely on one or two major funders. Such sources include rents and service fees, cash operating subsidies, special events space leasing, income from contracts, equity investment in client tenants, fundraising events, or other creative means. Clearly, if CTIs are to fulfil their role in entrepreneurial ecosystems in the long term, effective strategies to achieve financial viability are crucial. In this regard, there is a major gap in the existing evidence base that the research reported in this paper aims to fill.

Although business incubators have been extensively analysed by various scholars most analyses are focused on high income countries and there is paucity of research focusing on business incubators in emerging economies (Cao and Shi, 2021). In a recent study, Haugh (2020) examined how business incubation and entrepreneurship, in general, impact poverty alleviation in less developed economies. She analyzed four philanthropy-funded business incubators and found that they enhance multiple forms of capital and contribute to poverty alleviation. This is mainly achieved through educating entrepreneurs on setting up sustainable and innovative

ventures, as well as assisting them in increasing their financial, human, social, and cultural wealth. In contrast, Alon and Godinho (2017) argue, based on their examination of Brazil, that business incubators suffer from inefficient management, lack managerial and financial autonomy, and exhibit a tendency for part-time employment among entrepreneurs, employees, and incubator managers.

2.2 Sustainable entrepreneurial ecosystems

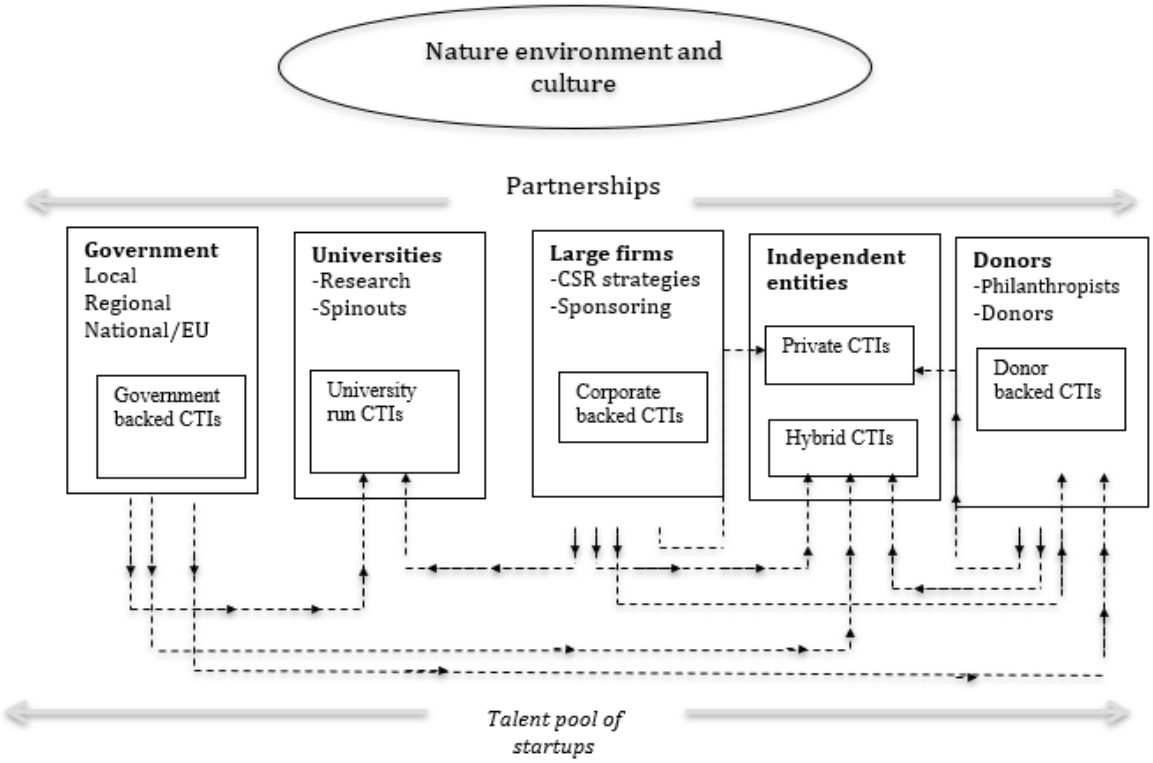
Cleantech startups aim to avoid the use of non-renewable resources and deliver sustainable value by generating less waste in their production than conventional startups. The adoption of the Sustainable Development Goals (SDGs) in 2015 cemented the importance of entrepreneurship in the SDGs and their implementation (UNFCCC, 2018). This entails the incorporation of targeted SDGs in the incubator's objectives, effective coordination between existing incubator programs, and implementing capacity-building programs for incubator managers (Surana et al., 2020).

Incubators do not operate in isolation but within the entrepreneurial ecosystem (Kuratko et al., 2017). Entrepreneurial ecosystems represent a diverse set of interconnected and often interdependent actors within a specific geographical space, impacting the creation and development of involved actors and potentially the economy as a whole (Cavallo et al. 2019). Cohen (2006) utilizes the entrepreneurial ecosystem framework to discuss how a community of actors could potentially evolve into what he terms a 'sustainable valley,' where a cluster of innovative sustainable technologies is developed in a specific geographic space. He defines sustainable entrepreneurial ecosystems as "*an interconnected group of actors in a local geographic community committed to sustainable development through the support and facilitation of new sustainable ventures*" (Cohen, 2006, p.3). Additionally, in the cleantech sector, startups face particular challenges as they need to comply with national and international environmental policies and regulations and consider the different objectives of their often multiple stakeholders (Giudici et al., 2019).

Thus, the entrepreneurial ecosystem literature provides a valid theoretical framework to understand how different actors support the financial viability of CTIs. In this case, the entrepreneurial ecosystem concept is further expanded to include significant new players entering the sustainability landscape, such as donors and philanthropists, but also large companies with social corporate responsibility (CSR) strategies (Kallmuenzer et al. 2023), which engage in CSR activities even during economic crisis (Karmani et al. 2023). In addition, fintech presents opportunities to address key challenges hindering the adoption of sustainable practices by SMEs, thus aiding clean tech startups within these incubators. Fintech innovations can optimize financial processes, support pay-per-use models, and provide alternative financing mechanisms, making it easier for clean tech ventures to access funding and scale their

operations sustainably. Moreover, by fostering collaboration among stakeholders within the ecosystem, fintech enables cleaner production, improves environmental management, and enhances societal development. This aligns with the objectives of clean tech incubators, which aim to support startups developing technologies for environmental sustainability. Overall, integrating fintech within clean tech incubators can enhance their economic sustainability by facilitating access to financing, optimizing resource utilization, and promoting collaboration among stakeholders to advance circular economy practices (Pizzi et al. 2021)

Figure 1: CTIs within the sustainable entrepreneurial ecosystem



Source: Adapted from Cohen 2006

Figure 1 expands Cohen's framework of the sustainable entrepreneurial ecosystem in three ways. First, it includes new players entering the sustainability landscape, such as donors, philanthropists, and large corporations. Second, it captures the capital flows between different actors of the sustainable entrepreneurial ecosystem. Third, it demonstrates that incubators are no longer standalone entities but instead are key actors of the sustainable entrepreneurial ecosystem as identified by Cohen (2006). They either establish and run their own CTIs (e.g., governments, universities, large firms) or are the main funders of independent CTIs.

Securing financial resources requires interaction and coordination within the incubator's partners as well as with other actors of the entrepreneurial ecosystem to allow the flow of financial resources. Within the entrepreneurial ecosystem's knowledge networks, incubators interact with partner institutions that provide them with financial resources. Finding these resources can depend on the personal networks of the incubators but also through connections with the local business environment (Aaboen, 2009).

Market failures call for government interventions in supporting science, technology, and innovation for SDGs, and publicly-funded incubators can potentially fulfil this role (Surana et al., 2020). CTIs often receive funding from public and private sources, which may significantly impact their intermediation activities (Kant and Kanda, 2019). Even though the activities of the incubator focus on the development of startups through the provision of services, training, and networking opportunities, it is not necessarily the startups themselves that provide the largest income for the incubator. The role of public support in entrepreneurship through the creation of science parks and incubators is well-documented (Basco et al., 2018), as considerable amounts of money have been invested by governments in support of science parks and incubators. Bone et al. (2019) estimate that between £20-30 million of public funding (UK and EU) is being spent on UK incubators and accelerators per year.

3. Data and method

A two-stage methodology is employed. First, a quantitative approach is used to empirically analyze the different funding sources of CTIs and explore the critical resources that become the main generators of income. This process has led to the formation of a typology of different funding models for CTIs. Second, a qualitative approach is used to validate the different incubation types developed in the first stage of the research and to understand how CTIs utilize the regional entrepreneurial ecosystem to acquire funding sources and generate income. To avoid ignoring geographical-related heterogeneities, which are important in the incubation industry, CTIs from both developed and developing economies have also been included in our analysis.

Stage 1 – quantitative approach

Using internet sources, magazines, industry reports, and databases, we identified 127 CTIs (cleantech incubators, focusing on companies in the cleantech industry) operating in Europe, the US, and globally. This count represents the total population of specialized CTIs as of October 2017. Initially, we analyzed the activities of these incubators, excluding those that ceased operations or had limited activities. Subsequently, we screened the remaining incubators to identify information on funding

sources and income generation strategies. This process resulted in a sample of 71 CTIs actively involved in cleantech incubation activities, for which we confirmed their funding sources and income generation strategies. Validating this information involved analyzing third-party sources (e.g., funders and customers) and occasionally conducting telephone interviews with cleantech incubator managers. In 2018, the UNFCCC identified fewer than 70 climate technology incubators and accelerators, with just 25 of them located in developing countries (UNFCCC, 2018).. Throughout the data analysis process, t-tests and Pearson correlations were employed to compare fundraising and income generation strategies of CTIs across high-income, medium-income, and low-income countries.

Tables 1 and 2 provide descriptive statistics of the study sample. Out of the total 71 CTIs examined, 50 are located in high-income countries (in Europe and North America), with the remaining 21 situated in middle and low-income countries (in Africa, Asia, and South America). Notably, 33 percent of the incubators in our sample do not generate any revenue. On average, CTIs have 1.69 different types of funders and employ 0.86 income generation strategies.

Table 1: Description of our sample

Variable	Obs	Mean	Std. Dev.	Min	Max
Based in high-income countries *	50	0.704	0.459	0	1
Based in middle and low countries ^	21	0.295	0.459	0	1
No revenue strategies in place	71	0.338	0.476	0	1
Number of different types of funding sources	71	1.690	0.855	0	4
Number of income generation strategies	71	0.859	0.742	0	3

* High-income countries include: US, UK, Germany, Norway and Finland
^ Medium and low-income countries include: Brazil, India, Mexico, Nigeria, Peru, China, South Africa, Kenya, Tanzania and Uganda

Table 2: Country of operation

Region	Freq.	Percent
Africa	10	14.08
Asia	8	11.27
Europe	28	39.44
South America	3	4.23
North America	22	30.99
Total	71	100

Stage 2 – qualitative approach

In the second stage, semi-structured interviews were conducted with 11 selected incubator managers from the incubators identified in the first stage of the analysis, conducted between October and November 2017 (see Table 3). Through the use of a semi-structured interview guide, the interviewees were encouraged to articulate their views on their environment through dialogue rather than simply answering questions. The interviewees were chosen based on their representation of the diversity of background characteristics among the original 71 CTIs and their prominent role within the cleantech industry. They varied widely in terms of geographic location and the level of development of countries in which they worked. Specifically, we aimed to have a balanced sample of managers from different regions and types of incubators. We initially approached managers who appeared to be very active in terms of fundraising and also consulted the managing team of the World Bank's Climate Innovation Centres (CICs) initiative to identify such managers. The interviews were conducted via telephone calls, and the questionnaire can be found in the appendices. The objectives of the interviews were threefold: first, to identify challenges associated with different fundraising and income generation strategies employed by CTIs; second, to further investigate the prominent role of public support identified in the quantitative analysis; and third, to further analyze challenges related to the cleantech industry.

Table 3: Interviewees characteristics

	Description of CTI	**Geography**	**Information**	**Code**
1	Corporate-sponsored	Africa	Co-founder, Female	R1
2	Privately run (for profit)	Continental Europe	Director, Male	R2
3	Donor funded	Africa	Director, Male	R3
4	Charitable status	UK	Managing Director, Female	R4
5	Philanthropic backed	Africa	Head of operations, Male	R5
6	Government-backed	UK	Head of Incubation, Male	R6
7	Government-backed	Continental Europe	Managing Director, Male	R7
8	Privately run (for profit)	Asia	Director, Male	R8
9	Private/public partnership	Asia	Coordinator, Male	R9
10	Initially the government-backed now fully private	Latin America	Director, Male	R10
11	Government-backed	Continental Europe	Head of Operations, Male	R11

The qualitative approach adopted in the second stage was appropriate because the literature on CTIs is very limited. Moreover, much of the relevant literature is concerned with services and incubator outputs rather than how CTIs are financed. These limitations make hypotheses formulation and testing premature for our research question.

Typology building

Finally, we developed a typology of CTIs considering their fundraising strategy. Specifically, we conducted a benchmark analysis of the 71 CTIs, identifying their key sponsoring entities and stakeholders. This comparison allowed us to construct six archetypes of CTIs at an aggregate level. We then correlated these CTI types with their income generation strategies. Analyzing the combination of CTI types and income generation strategies shed light on various dimensions of our typology and reflected different trajectories of capital flows within the entrepreneurial ecosystem.

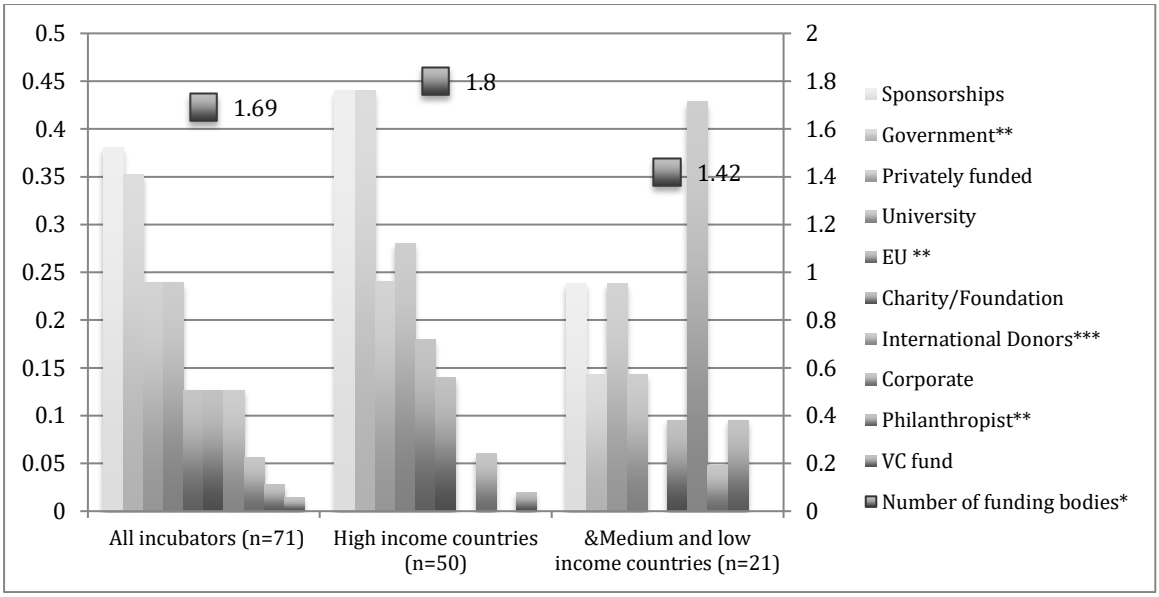
As discussed, the literature on the financial viability of incubators is still relatively limited, making our research mainly exploratory. However, we are not entirely detached from industry researchers; we are deeply involved in this field through our assessment and support of incubation programs established by the World Bank. Many insights stem from our own experience working with the World Bank-supported Climate Innovation Centres (CICs) directly and testing different approaches. It's essential to note that our hands-on involvement did not introduce biases into our approach. Throughout the data collection and interview process, we acted as independent researchers. Additionally, we made interviewees fully aware that the interviews were conducted solely for research purposes.

4. Results and analysis

4.1 Funding sources for CTIs

Incubators can enhance their resources by leveraging the main founders or tapping into external resources from sources beyond the main founders. Our analysis of 71 CTIs operating in both high-income and medium and low-income countries examines the nature of the funding support they receive.

Figure 2: Main CTIs funding sources



Note: t-test coefficients between high-income and medium and low-income countries: * p<0.10; ** p<0.05; ***p<0.01

Figure 2 illustrates the popularity of different funding sources among CTIs and provides a breakdown between those based in high-income and those based in middle and low-income countries. The most popular funding sources among surveyed CTIs are corporate sponsorship, government, private entities, universities, and international donors in the case of developing countries. Other popular funding sources also include the European Union, charities, foundations, philanthropists, and VC funds.

On average, incubators receive funding from 1.69 main sources. CTIs based in high-income countries have a greater diversity of funding sources (1.8) compared to 1.42 in medium and low-income countries. This suggests that a larger proportion of incubators operating in medium and low-income countries are dependent on a single funding source compared to those operating in high-income countries. While many incubators in high-income countries are government-funded, through national, local, or EU sources, universities and large corporations add to the range of funding for incubators. In contrast, international donors are the main funders in the case of CTIs based in medium and low-income countries.

Figure 3: Public funding in CTIs

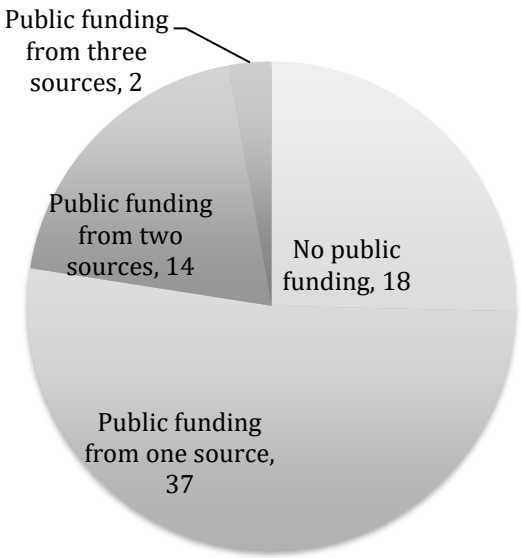


Figure 3 shows that 75 percent or 53 out of the 71 incubators included in our study have received some funding from public sources, including national, local, and regional governments, the European Union, or international donors, highlighting the significant role of public or quasi-public organizations in promoting sustainability agendas at the regional level.

Sponsorships: 38 percent of all incubators in our sample received some form of support from corporate sponsors. Sponsorship can vary, ranging from financial assistance to in-kind support such as access to laboratories and R&D departments. There is a notable difference in sponsorship levels between incubators in high-income countries (44 percent) and those in medium and low-income countries (24 percent), likely due to the fewer number of large corporations in the latter. Corporate sponsorship not only provides necessary funds but also enhances the incubator's branding. However, securing corporate sponsorship can be challenging, requiring a clear value proposition for companies.

Government entities: 35 percent of all incubators received funding from national or local governments, with a higher percentage in high-income countries (44 percent) compared to medium and low-income countries (14 percent). International donors often compensate for limited government involvement in the latter group.

Private entities: 24 percent of incubators, regardless of the country's development stage, are funded by private entities. These incubators often operate as business consultancies or intermediaries, running incubator or accelerator programs as part of their broader business strategy.

Universities: 24 percent of the examined incubators are established or run by universities, with a higher proportion in high-income countries (28 percent) compared

to medium and low-income countries (14 percent). Universities establish incubators to facilitate knowledge transfer to incubator firms.

International donors, philanthropists, charities, and foundations: 43 percent of incubators in developing countries received support from international donors, while 10 percent received support from philanthropists. International support plays a crucial role in de-risking the cleantech market and attracting commercial capital. As a CTI manager from a low-income country put it: "*The cleantech market needs to be de-risked, which in turn means that there is a role for donors, especially in the beginning they need to be a magnet for commercial capital and provide room for the market-maker to experiment and build the ecosystem. It is very hard to succeed if that has not been achieved, and it cannot be achieved without support*", R10. Table 4 presents a framework of funding sources for CTIs.

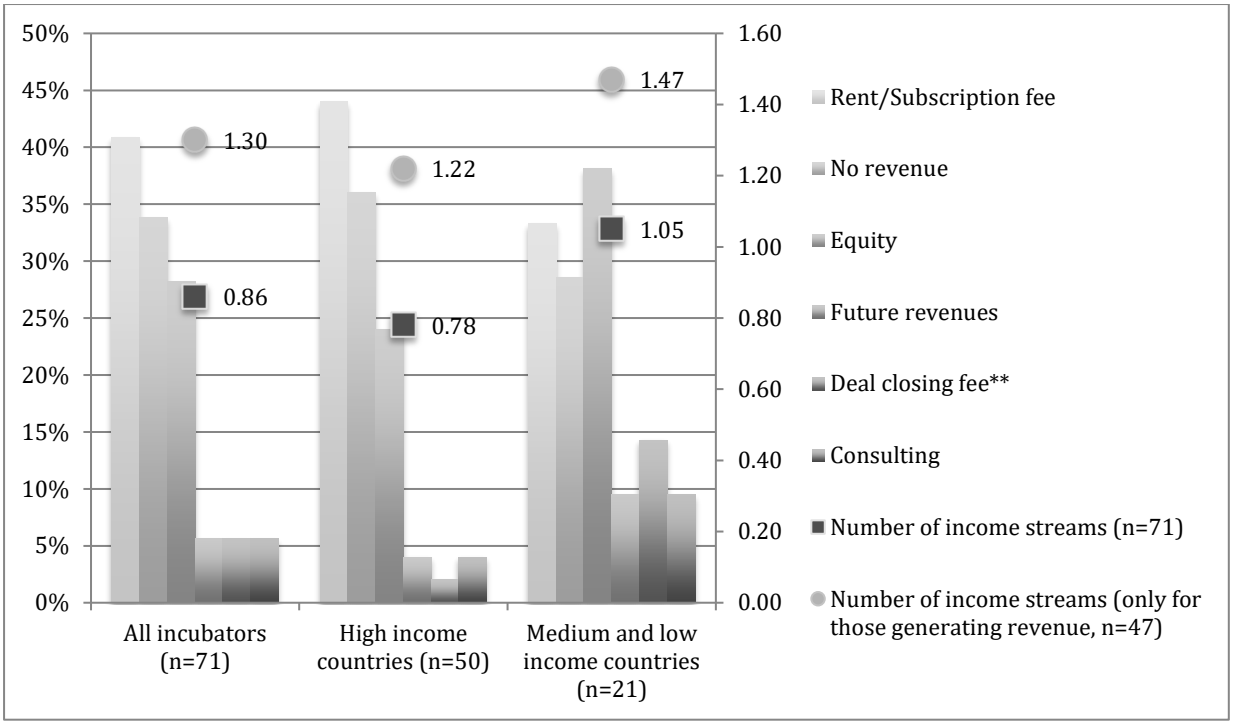
Table 4: Framework of funding sources for CTIs

Internal factors	Entrepreneurial factors	*Quality of startups*
	Incubator specific factors	*Business model*
		Governance
		Ownership
External factors	Funding factors	*Existence of large corporations*
		Government programmes
		Philanthropic and donor programmes
	Ecosystem factors	*Economic development of the host country*
		Presence of Venture Capital funds
		Active and vibrant startup community
		University engagement

4.2 Income generation strategies of CTIs

There are several income generation strategies adopted by incubators, including renting space, providing fee-based support, or acquiring equity in exchange for future gains. Figure 4 highlights the most prevalent income generation strategies among the CTIs examined.

Figure 4: Main income sources by country of operations



Note: t-test coefficients between high-income and medium and low-income countries: ** p<0.05

Figure 4 suggests that the most popular income sources for the incubators in our sample are rent or subscription fees followed by equity shares. Future revenues, deal closing fees, and consulting are considerably less popular income sources. Interestingly, only two-thirds of the incubators in our sample generate any type of revenue. On average, revenue-generating incubators receive income from 1.3 main sources. This figure of the diversification level of income streams is 1.22 for incubators operating in high-income countries and 1.47 for those operating in medium and low-income countries, suggesting that a larger proportion of CTIs operating in high-income countries depend on a single income source compared with those operating in medium and low-income countries

Rent or subscription fee: Rent is the most common source of income for cleantech incubators, along with fees for the business support provided (business incubation fees) and other fees for the use of facilities and services. 41 percent of the CTIs in our sample generate some income by renting offices or charging for the services they provide. This proportion is higher in high-income countries (44 percent) as opposed to 33 percent in medium and low-income countries. However, for this strategy to succeed, the incubator needs to be based in a central location, and it needs to offer much more than just space. As a CTI manager from a high-income country put it*: "The risk with this strategy is that companies may not be interested in socializing with other tenants as they only rent the office because it is cheaper than the market rates. It is also worth noting that while charging rent could be seen as undue pressure on fledgling businesses, it is also a commitment device to ensure companies work toward generating their own revenues and that they have skin in the game,"* R4.

Equity share: The second most popular income strategy focuses on sharing in client success by way of small equity positions. 28 percent of all incubators in our sample have adopted this model, which is more prevalent in medium and low-income countries (38 percent) compared with high-income countries (24 percent). Taking a small proportion of equity, or a percentage of gross sales for a predetermined period, can be an effective way to receive payment for business incubation once the company being assisted has succeeded, rather than upfront when the company is short of cash (World Bank 2011). At the same time, the opportunities facing CTIs are likely to vary with location as well as with the characteristics and behaviors of the CTIs themselves. As an Incubator manager from a low-income country put it: *"We invest anything from $20k to $120k to facilitate market access aiming that within a period of 8-12 months the company will have its first client. We facilitate pilots or trials once we believe the underlying technology works, and we then present the investment opportunity to 250 people from the industry,"* R8.

However, business models reliant upon 'success sharing' with client companies have proven to be somewhat problematic. This model entails high risks, and according to some interviewees, it may not necessarily be applicable to CTIs as it takes considerable time for a cleantech company to exit: *"Equity is suitable only for digital industry incubators in which companies exit relatively quickly. In the case of the cleantech industry, companies require significant capital and a long process before they exit. So the incubator cannot afford a long period of illiquidity, and therefore the equity model is not suitable for cleantech incubators,*" R4. In that respect, the high proportion of CTIs that have opted for equity as an income generation strategy is rather intriguing as it could hinder their viability in the long run.

Other income sources: Income generation through consulting activities is a popular strategy among some CTIs, especially in medium and low-income countries. An incubator manager from a low-income country stated that: *"We cover approximately 40-50% of our expenses through consultancy projects"* R5. Deal closing fee is a mechanism, which allows incubators to charge a fee when an investment deal is closed between the incubatee and a venture capital fund. This mechanism is more prevalent in medium and low-income countries (14%).

4.3 A typology of cleantech incubators

According to Rich (1992, p. 758), a typology '*provides a means for ordering and comparing organizations and clustering them into categorical types without losing sight of the underlying richness and diversity that exist within the type*.' To construct the typology of CTIs, we follow Warriner's (1984) empirical method, where the identification and naming of groups emerge only after the numerical analysis of data and the corresponding assignment of organizations into groups (a posteriori). In this case, organizational classes emerge from the empirical procedures used to sort

organizational features on the basis of similarity or contrast (Rich 1992). In the case of the organizational typology, the question arises as to the parameters or attributes by which 'organizations' will be defined (ibid). Aldenderfer and Blashfield (1984) stated that the selected attribute should be based on the stated theory that underlies the classification, while Rich (1992) argues that one source for the selection of the organizational variables upon which the classification will be built is the context of the study itself and the body of underlying theory. In our case, the financial resources of the CTIs have been used as the basis of analysis. We categorize CTIs according to their sponsoring entities and stakeholders, which fundamentally affect the design of the incubator's business model and the execution of the incubator's business plan. Many other parameters exist; however, we believe they are a consequence of the stakeholders' objectives, and by defining the primary source of funding, the rest of the variables and attributes will be set.

As a basis for identifying the different types of CTIs, we used the results of the analysis presented in Figure 2 that identified ten funding sources, and we grouped them into five categories. We then examined each one of the 71 CTIs and based upon the degree of their stakeholders' involvement in fundraising, we allocated them to these five key categories (see Table A.1 in the appendices). In cases when the CTI had a single sponsoring entity or stakeholder, the allocation to one of the five types was simple. In cases where more than one sponsoring entity or stakeholder was involved, we consulted the incubators (via email or telephone) or third-party sources in order to identify their main sponsoring entity or stakeholder. At an aggregate level, this process resulted in the identification of five archetypes. Table 4 describes the six types of CTIs while cross-examining their preferred income generation strategies, as identified in Figure 4.

Table 5: Typology of CTIs

Incubation type	***Description***	**Popularity rating of income generation strategies***					
		Rent/fee	***No revenue***	***Equity***	***Future revenues***	***Deal closing fee***	***Consulting***
University-run CTIs	*A not-for-profit entity that leverages on existing university infrastructure and operational expenses are mainly covered by the university with the sometimes, additional support of corporate sponsorships.*	+	--	++	++	-	-
Private CTIs	*Entirely private and for-profit entities that cover all their expenses via income generation strategies and sponsorships. Includes those run with only corporate sponsorships.*		--	++	+	+++	++

Hybrid CTIs	*Supported by various bodies of the entrepreneurial ecosystem, including public bodies and corporations. A typical hybrid incubator will have multiple funders and will also generate income to cover some of its operating expenses.*	++	--	++	--	+	+
Donor-backed CTIs	*Initially covers most of the expenses but with a clear objective to generate income or identify other subsidies which will allow the incubator to survive once the donor support finishes. It also includes support from charities or foundations.*	+		+	+	++	++
Government-backed CTIs	*A typical government-backed incubators covers most of its expenses from government subsidies (including EU, regional or local authorities funding).*	--	+++	---		--	
Corporate CTIs	*Fully supported by a large corporation, not part of its strategy to generate income from outsiders.*	-	+++	-	-	-	-

* To rate the use of income generation strategies, we assigned each type a score of " - " or "+" based on the coefficients of Pearson correlations (p.c.) as follows: "+" = 0.10> p.c..>0; "++"= p.c.>0.10 and "+++"= p.c.>0.20 and statistically significant. Equally, "-"= -0.10<p.c.<0; "- - "=p.c.>-0.10 and "- - - "=p.c.>-0.20 and statistically significant. Detail Pearson correlations coefficients can be found in Table A.2 in the appendices.

Table 5 suggests that the most common income generation strategies for University-run CTIs are equity and future revenues, while private CTIs also focus on deal-closing fees and consultancy services. Hybrid CTIs usually charge rent to their incubatees, make equity investments, and also generate income through deal closing fees and consultancy services. Donor-backed CTIs often adopt several income generation strategies, while in contrast, government-backed and corporate CTIs do not actively seek to generate income.

Figure 5: Funding and income diversification levels of CTIs

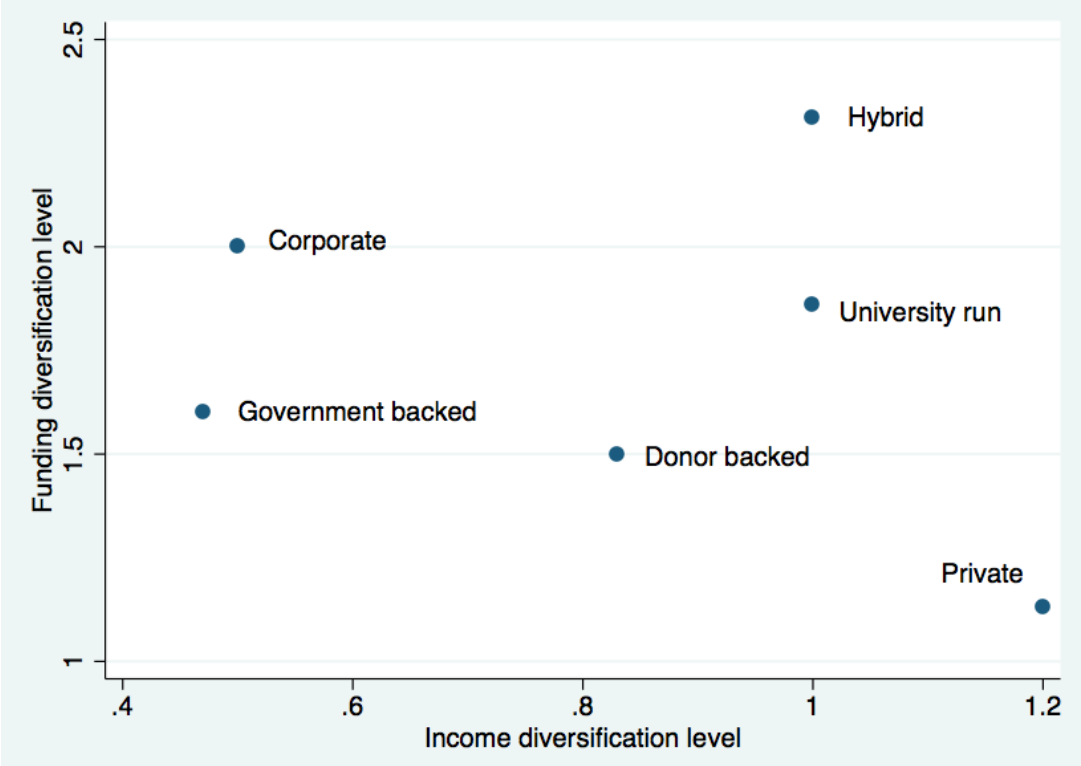


Figure 5 suggests that hybrid incubators have a much broader level of funding diversification compared to any other type of incubators, which is combined with a high level of diversity in income generation strategies. Government-backed and corporate CTIs, on the other hand, are more dependent on a single source of funding and have a very limited level of income diversification. Figure 5 also suggests that a greater diversification of funding sources away from government funding is associated with a pluralistic approach to income generation strategies.

4.4 The case for public support

Government intervention in the early-stage cleantech industry is justified to address classic "market failure" reasons, where there is underinvestment in R&D and technology due to uncertainties, externalities, and knowledge spillovers, which create disincentives for investments in innovation (Howells, 2005). The interviewees in high-income countries spoke with one voice in affirming the importance of government support for cleantech incubation: *"This is a market failure space, and finding sustainable privately funded models for running cleantech incubators is challenging. Most of the cleantech incubation we have done, and most of the cleantech incubation we have seen in the market, is publicly funded in some way or another because the companies can't really afford to pay for them, and typically it's not something that corporates or large private funders are willing to fund on their own without some public support,"* R6.

Governments often establish incubators with the implicit understanding that the incubator would become financially independent eventually. Many incubators are

required by the government or the EU to achieve self-financial viability within three years: *"Achieving self-financial sustainability is a necessity as public funding will likely dry up after three years*," R11. However, many of the incubators interviewed had not reached that goal and were still heavily dependent on ongoing subsidies from the government to support operations: *"Although when we talk to startups a lot of them want to receive support services, none of them can afford to pay for such support, and we cannot afford to work for free. That is a vicious circle that has to be broken somehow, and it is either broken through public money (to run a cleantech incubator) or private money. I can't see a way of sustaining otherwise," R5.*

Some interviewees also made the case that the cleantech industry entails more challenges, making public intervention necessary: *"Another cleantech-specific challenge is that positive environmental impacts are hard to monetize. Clean often means more expensive, and many niches in this space require government support to create markets,*" R7. "*If we had to penny-pinch and fundraise etc., we wouldn't be able to support. It's very difficult in cleantech to be self-sustainable and successful*," R11. In contrast, other interviewees, while applauding the involvement of the public sector in the industry, argued that CTIs should adopt a more business-like approach when it comes to financial sustainability: *"It is positive for the public sector to be involved. On the other hand, generating revenue is healthy as well, as long as public investors share some of the risk,"* R7. *"Because we were forced to find our own money, we are a more resilient platform today, can face shocks, have pushed themselves to be more creative. This has made us stronger*," R10. "*Just like their start-ups, we also need to be sustainable*," R10.

4.5 CTIs within a sustainable entrepreneurial ecosystem

A key message that several interviewees put across is that a fully functional entrepreneurial ecosystem is a prerequisite for CTIs to achieve financial viability: *"We can't look at these centers in isolation. Setting up a single initiative won't produce the desired outcome. To get through the valley of death we need a multi-pronged approach. We need the whole ecosystem*," R19.

More particularly, governments are the sole funders of government-backed CTIs, but they also provide subsidies to hybrid, university, and donor-backed CTIs. As we saw in previous sections, government-backed CTIs are relatively less engaged in income-generating activities. In general, incubators that are funded and supported financially by the government tend to have different operational features from incubators that are primarily supported by more diverse partners such as universities and private entities. Large corporations often establish their own corporate incubators as the sole funders. They are not interested in raising revenue. In addition, large corporations provide financial support in the form of sponsorships to university-run, private, and hybrid CTIs. Thus, both governments and large corporations have a dual

role within the sustainable entrepreneurial ecosystem: first, they establish their own CTIs, and second, they provide financial support to external CTIs.

University-affiliated incubators are largely funded by their parent universities with some additional support from government or private sponsors. University-run CTIs also aim to raise income through deal closing fees and equity investments. Private CTI interviewees described their approach as demand-oriented incubation, which is aimed at creating companies based on local corporations' needs. Our analysis shows that they receive financial support from large corporations and VC funds and they have a very diverse income generation strategies including equity, future revenues, consulting, and deal closing fees. However, as already pointed out earlier, private CTIs are much less rooted in the regional innovation cluster or territory, and this may be an issue of concern, particularly for the sustainable entrepreneurial ecosystems in medium and low-income countries in which private CTIs play a prominent role.

In the case of donor-backed CTIs, the donors cover the initial cost of investment to set up the incubator, as well as a large part of the operational cost. Donor CTIs have similar objectives to government-backed CTIs, but they behave differently in terms of income generation strategies as they actively engage in consulting activities or seeking to generate revenues through deal closing. Hybrid CTIs are generally funded by a coalition of partners from the public and private sectors. They can raise funding from various actors such as governments, large corporations, and donors, and they generate income through rents, fee subscriptions, consulting, and equity investments. Such advantages may be attractive to talented start-ups. Interviewees suggested that this approach is necessary to achieve viability of the incubator in the long run. This plurality of resources provides them with greater flexibility and access to several ecosystem actors, which can be perceived as competitive advantages against other types of CTIs.

5. Conclusions

In this paper, we emphasize factors at two levels of analysis that shape the nature and the entrepreneurial ecosystem activities of incubators: (a) we identify the incubators' sponsors, and (b) we examine and compare the fundraising strategies and business models of business incubators in high-income and in medium to low-income markets. Overall, our research findings suggest that successful CT incubation requires the adaptation of multiple fundraising models and income generation strategies, the successful implementation of which depends on the ability of the CTI to utilize the entire entrepreneurial ecosystem that encompasses networks linking government, large corporations, universities, donors, entrepreneurs, and financial institutions that can meet the needs of the CTIs' resource requirements.

5.1 Theoretical Implications

Although most of the previous literature on business incubators is concerned with services offered to incubatees and incubator outputs, our research focuses on how incubators and especially cleantech incubators are financed. Similarly to Colbert et al. (2010), we find that effective strategies that rely on many sources of funding and revenue generation are crucial to achieving financial viability. Our analysis shows that the entrepreneurial ecosystem does not only provide networking and interaction opportunities to the CTIs but also sources of finance which are necessary for their long-term survival. As a result, our work expands Cohen's (2006) theoretical framework of a sustainable entrepreneurial ecosystem by including a new set of funding entities and by illustrating the capital flows between different actors of the sustainable entrepreneurial ecosystem.

In that sense, our work contributes to the entrepreneurial ecosystem theory, which offers a valuable framework to analyze how CTIs can optimize the scope and interaction of financial resources flow between CTIs and founders or parent companies and clients. Our findings show that the cleantech incubators can engage various stakeholders, in line with findings in the importance of network resources in innovation ecosystems literature. The chances of success in securing funding or raising income depend on the degree of access to and quality of financial resources available from the founders or parent organizations, as well as the ability of the incubator to raise income through its incubatees and other actors of the entrepreneurial ecosystem. Thus, a high degree of success can be achieved if the incubator is closely linked with the entrepreneurial ecosystem to build quality interaction and trust, as interviewee R9 pointed out in the previous section.

A further implication of the interconnectivity of different funders with CTIs is that through their fundraising activity, CTIs establish close contacts with all these bodies (including corporations) and in that sense, they are able to build trust and extend the entrepreneurial network of the new ventures to potential customers, suppliers, and service contracts. In addition, funding providers will have a vested interest in the incubatees of the incubator they have invested in, so they may be keener to support them. However, the strategic objectives of the CTIs tend to vary based on the type of sponsorship and the level of involvement their shareholders wish to have. In that respect, the funders' agendas could influence or even dominate the whole sustainable entrepreneurial ecosystem.

Overall, our results confirm previous findings regarding the leading role of public or quasi-public organizations in implementing a sustainability agenda. Similarly to Aaboen (2009), we find that the largest part of the CTIs' income is public finding. However, this is only the case for CTIs based in high-income countries as in the case of medium and low-income countries, the main funders of CTIs are international donors rather than local governments.

As an institution that teaches start-ups how to raise finance and achieve growth, an incubator also needs to secure financial resources and exhibit sustainable revenue streams. However, both existing empirical evidence and the results of this study suggest that only a modest proportion of their operating expenses tend to be covered by revenue generated through income generation strategies such as rent from client tenants, consultancy services, or equity investments. The remainder is covered by external support, such as government funding, donations, or corporate sponsorships. The strategic objectives of the CTIs would tend to vary based on the type of sponsorship and the level of involvement their shareholders wish to have. In that respect, the funders' agendas could influence or even dominate the whole sustainable entrepreneurial ecosystem.

5.2 Policy Implications

Among the six different CTIs models identified, hybrid CTIs have a range of funding sources from different levels of public and private actors and a mix of income generation strategies, which result in strong networks among the triple helix that work in favour of the incubatees in terms of gaining access to private corporations and government bodies. Policy implications of this finding at the incubator level are that incubators may need to consider gaining support from plural sources, both government and private, to reduce excessive dependence on any one source.

Both the outcomes of the quantitative and the qualitative analysis suggest that public funding is an important and necessary ingredient in building a successful cleantech incubation program. However, higher levels of government involvement appear to correlate with fewer income diversification strategies, whereas lower levels of government involvement increase the likelihood of the incubator's proclivity to pursue different fundraising and income generation revenues. Nevertheless, it is important to acknowledge that the dependence on a single government agency or international donor is not considered sustainable because such support is usually given as seed financing with a predetermined end date. Therefore, there is a strong case to be made that CTIs also need to think about their financial viability in the long run when they will no longer be able to depend on government or donor funding.

Even if an incubator has received some public or other external funding for a period of time, there are several reasons why its managers should work towards defining a path to financial viability. First, funders look favourably on plans for financial viability. If the organization is planning to raise additional external funding in the future, be it from public or private sources, potential funders would want to see that their investment in the incubator will have a lasting impact beyond the time of their funding. Second, existing funding will not last indefinitely. There is no guarantee that follow-on funding can be secured once the current funding cycle ends and funders sometimes pull their funding with little warning. In these cases, the very survival of the incubator may hinge on the existence of alternative revenue streams or a diversified

funding base. Third, being financially viable bestows independence and flexibility. Funders will often impose restrictions on the use of funds or require that they are included informal governance structures. Becoming self-financed means becoming independent and gaining the flexibility to run the incubator as management sees fit. Fourth, increasingly relying on generated revenue increases focus and efficiency. When an incubator generates its own revenue, it takes on greater responsibility for its own success. This can help sharpen management's focus and trim the whole organization on efficiency, although there is likely to be additional costs particularly in terms of the staff time required to write the bid and 'chase the money'. Finally, by trying to raise external income, the incubator management team enhances its entrepreneurial capabilities and business skills which can be transferred to the incubatees.

5.3 Implications for Practitioners

Achieving financial sustainability requires that the incubator attracts sufficient funding or generates enough revenue to cover set-up and operating expenses. Our research, which has focused on the income side of the sustainability equation, has clearly revealed that there is not a single proven recipe for financial sustainability. As a result, incubator managers need to carefully think through the objectives they would like to accomplish and the resources they will require. They also need to decide which combination of funding and revenue sources they can tap into and consider the implications associated with these decisions. The typology of CTIs developed in this paper may provide guidance to incubators managers on what funding and income sources to pursue, depending on the development level of the country they operate in.

When designing a business model that generates revenues, CTI managers should consider how to align revenue streams with incentives for success. To avoid creating competing incentives and distractions, it is recommended to focus on revenue streams that are strengthened by the incubator's success. For example, our results show that 'equity' is a very popular income generation strategy for CTIs (figure 4). Taking equity from clients or charging a success fee upon graduation will align incentives because the incubator only makes money when it does a good job helping its clients become successful. A rental model, on the other hand, may not create a strong incentive to help clients graduate (since they may leave the incubator then) unless it is progressive in that it charges clients more as they grow. Revenue generation should not come at the expense of the clients. Charging clients for rent or other services may be beneficial to them because it helps confirm their interest in the service and ensure that they have some skin in the game. If the charges are too onerous, however, this can hurt start-ups who are likely strapped for cash as it is.

Diversification is healthy, but there are (opportunity) costs associated with revenue generation, too. For the same reason that diversification of funding sources can be beneficial, so can a diversification of revenue streams: it increases resilience to shocks. However, generating revenue tends to be much more costly in terms of time

and money than securing funding. Incubators with small teams should take this into account and prioritize the revenue streams they pursue accordingly. How can the most revenue be generated with the least effort and investment, i.e., where is the return on investment the greatest? It may then be sensible to pursue revenue opportunities one at a time to not stretch the team too thin.

One of the dangers of having a small number of core funding sources that cover a large portion of the operating expenses of an incubator is the resulting dependence on funders continued commitment. Not only does this potentially decrease the agility of the program, because the funding may come with strong covenants and the program managers will have limited leverage to negotiate, but it also creates the risk of bankruptcy when the funding dries up. One way to counteract these two problems is to create a portfolio of income generation strategies.

5.4 Limitations and Future Research

One of the limitations of this study has been the relatively small number of incubators analyzed. However, we were unable to identify a larger number of incubators that are specialized in cleantech investments and met our selection criteria. Further studies may seek to supplement our data with additional and more detailed information related to revenue streams and sources of funding through a large-scale survey. For example, all CTIs managers could be surveyed to identify exact amounts received by each sponsoring entity and to examine qualitative aspects of the fundraising process (e.g., including challenges, etc.). In addition, the challenges related to fundraising could be further analyzed based on interviews with incubator managers and also sponsors.

The cleantech industry boasts numerous successful companies that have secured millions of dollars in venture capital (VC) funding from some of the world's most prestigious investors. Many of these successes have evolved into unicorns. A notable example is Swedish Northvolt, a clean energy startup now valued at $20 billion.[1] This raises the intriguing question of whether cleantech startups have a similar likelihood of achieving unicorn status compared to other sectors. Additionally, it prompts an examination of whether existing academic research on unicorns is applicable to the cleantech sector. Future research on these topics could yield new insights into this under-researched and often misunderstood industry, particularly regarding financial returns and investment potential.

In a systematic literature review examining the underlying factors enabling the emergence of unicorn firms, Giardino et al. (2023) identified two crucial factors, among

[1] Northvolt plans Stockholm listing for potential $20bn IPO, Financial Time, https://www.ft.com/content/ca7a87b7-8f37-411e-851e-cb83750dba0f

others, related to external funding. The first factor concerns the speed at which a company becomes a unicorn across different countries worldwide. The second factor relates to the drivers of unicorns' valuations by venture capitalists. Future research could investigate whether these two parameters differ between cleantech and other sectors. The findings of such a study could provide valuable insights for investors and improve the appeal of "clean capitalism," potentially influencing future research and funding decisions in this area.

It is important to also note that there is a time lag between the data collection and the publication of this research. The interviews were conducted in 2017, and the analysis, interpretation, and write-up of the findings extended over subsequent years. While the interviews were conducted in 2017, the data collected remain pertinent to our research objectives. The financial viability strategies and funding sources in the cleantech incubator industry are subject to change but exhibit enduring patterns that provide valuable insights. Future studies may explore the more recent developments in this field to provide a comprehensive understanding of its financial viability strategies.

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Appendices

Table A.1: Typology building process

Stage 1	**Stage 2**	**Stage 3**
Identification of sponsoring entities and stakeholders	*Grouping of funding sources*	*Construction of archetypes*

1) Sponsorships 2) Government 3) Private entities, 4) Universities, 5) Corporations 6) International donors, 7) European Union, 8) Charities/foundations, 9) Philanthropists 10) VC funds	1) Corporate sponsorship, 2) Government entities 3) Private entities, 4) Universities 5) International donors/philanthropist/charities/foundations	1) Government-backed incubator 2) University-run incubator 3) Private incubator 4) Corporate incubator 5) Donor-backed incubator 6) Hybrid incubators

Table A.2: Pearson Correlation Analysis: Income generation strategies adapted by each incubator type

Income generation strategy/Key funder		*Government backed*	*University run*	*Private*	*Corporate*	*Hybrid*	*Donor backed*
Equity	Pearson correlation	**-0.278****	0.108	0.1361	-0.0172	0.1119	-0.0318
	Sig.	0.0189	0.37	0.2577	0.8867	0.3529	0.7925
Future Revenues	Pearson correlation	0.006	0.1241	0.0232	-0.0597	-0.1318	0.0528
	Sig.	0.9601	0.3025	0.8478	0.6209	0.2733	0.6619
Deal closing fee	Pearson correlation	-0.1371	-0.0808	**0.322*****	-0.0597	0.0144	-0.1102
	Sig.	0.2543	0.5029	0.006	0.6209	0.905	0.3603
Consulting services	Pearson correlation	0.006	-0.0808	0.1728	-0.0597	0.0144	-0.1102
	Sig.	0.9601	0.5029	0.1495	0.6209	0.905	0.3603
Monthly rent	Pearson correlation	-0.1305	0.0135	-0.0089	-0.0788	0.1005	0.084
	Sig.	0.278	0.9108	0.9413	0.5138	0.4045	0.4862
No revenue	Pearson correlation	**0.2968****	-0.1365	-0.151	**0.2128***	-0.1716	-0.0045
	Sig.	0.012	0.2565	0.2087	0.0748	0.1524	0.9704
Pubic support	Pearson correlation	**0.3270*****	0.1927	**-0.729*****	**-0.278****	**0.236****	0.1764
	Sig.	0.005	0.1073	0	0.0185	0.0467	0.1411

Correlation coefficients that are statistically significant (p-value below 0.1) are in bold.
* p < 0.1. ** p < 0.05. *** p < 0.01.

Interview questions

1. What are the key goals of the incubator (prioritise from 1 to 5):
   a. regional development,
   b. financial return,
   c. support to sponsors etc.
   d. to generate employment,

e. improve local industry
f. improve public image.
g. benefits over internal R&D.

2. How and by whom was the incubator set up? Where did the initial funding come from, how many years was it intended to cover and what type of expenses (e.g. investment/capital expenses vs. operating expenses)?

3. Was there a detailed business plan in place before the establishment of the incubator?

4. How important was it to have such a business plan? Did the funders or the managers create the plan?

5. How important are the following variables in measuring the performance of the incubator (1 to 5):
a. job creation, 5
b. graduation rates,
c. start-up creation,
d. amount of funding attracted,
e. survival rate,
f. income generation
g. …other?

6. Who is the key shareholder or main financial contributor: A university, private company, city council, private individuals, corporation, government, donor (including EU, World Bank etc)?

7. Do you receive any funding from Impact Investors (incl. investments in start-ups and incubator itself)?

8. How important is it to the management/the funders that the incubator/accelerator achieve financial self-sustainability? Is it an explicit objectives? Is there a percentage of expenses the incubator is expected to cover from revenue?

9. Within how many years from establishment was the incubator intended to reach this objective?

10. Is management in any way incentivized or rewarded (whether financially or otherwise) for the achievement of this objectives? What about the other performance measures mentioned in Q. 7?

11. What is the proportion of your annual expenses is covered by the following (summing to 100%):
a. Government,
b. sponsor,
c. income generation,
d. donor,
e. contributions from private investors etc,
f. other?

12. From income generation, what proportion comes from the following (summing to 100% of income generation):

a. office space rent,
b. training,
c. consultancy services,
d. exits (equity sales),
e. patents and royalties,
f. revenue sharing,
g. other?

13. What are the particular challenges that arise in the cleantech sector with regard to revenue realization (e.g. high up-front capital cost, high R&D costs, longer time to revenue, etc)?

14. What are the key lessons that you learned through establishing and running the incubator? What kind of advice you would give to people in the process of establishing an incubator/accelerator?

15. In which ways does the business model and the financing structure of the incubator influence long-term success and sustainability of the program?