



What are business incubators doing for environmental impact start-ups?

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Abstract

The goal of this dissertation is to understand how business incubators are supporting environmental impact start-ups and how the latter are evaluating this support. To answer the research question, I carried out a comparative case study on three Portuguese business incubators. The results show that business incubators are supporting environmental impact start-ups through different strategies: giving the possibility of virtual incubation; providing infrastructures and co-working spaces; giving customized support and advice to start-ups; promoting community building opportunities; enabling transfer of knowledges either through the built community or by introducing start-ups to mentors or institutions; matchmaking with stakeholders, such as potential investors or clients; and by promoting conferences and sustainable initiatives. Ultimately, as virtual incubation and remote work are becoming more popular, some strategies are harder to put in practice such as community building opportunities, as start-ups are not taking full advantage of it.

Keywords: business incubators; environmental impact start-ups; mentoring; knowledge transfer; community building; matchmaking with stakeholders

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Resumo

O objetivo desta dissertação é perceber como incubadoras de empresas estão a apoiar start-ups de impacto ambiental e como estas estão a avaliar esse apoio. Para responder à questão de investigação, realizei um estudo de caso comparativo em três incubadoras de empresas portuguesas. Os resultados mostram que as incubadoras apoiam start-ups de impacto ambiental por meio de diferentes estratégias: dando a possibilidade de incubação virtual; através da disponibilização de infraestruturas e espaços comuns de trabalho; dando aconselhamento e suporte personalizado para start-ups; promoção de oportunidades de construção de uma comunidade; permitindo a transferência de conhecimentos através da comunidade construída ou apresentando start-ups a mentores ou instituições; conectando as start-ups com stakeholders, como potenciais investidores ou clientes; e promovendo conferências e iniciativas sustentáveis. Por fim, à medida que a incubação virtual e o trabalho remoto se tornam mais populares, algumas estratégias são mais difíceis de colocar em prática, como oportunidades de construção de comunidade entre start-ups, pois estas não estão a tirar partido das mesmas.

Palavras-chave: incubadoras de empresas; start-ups de impacto ambiental; mentoria; transferência de conhecimento; comunidade; conexão com stakeholders

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CONTENT LIST

- 1. INTRODUCTION 7
- 2. LITERATURE REVIEW 9
 - 2.1 Entrepreneurial support and business incubators: a definition and its evolution 9
 - 2.1.1 Business incubator: a definition 10
 - 2.1.2 Three generations of BIs 10
 - 2.2 How does business incubators work..... 11
 - 2.2.1 Selecting start-ups 11
 - 2.2.2 Providing business support..... 12
 - 2.2.3 Acting as mediators 13
 - 2.2.4 Role of business incubator managers and its effect on start-ups..... 14
 - 2.3 Start-ups as sustainability transition enablers..... 14
- 3 METHODOLOGY 16
 - 3.1 Research design 16
 - 3.2 Data collection..... 17
 - 3.3 Data analysis..... 20
- 4 EMPIRICAL SETTING 22
 - 4.1 HIESE..... 22
 - 4.2 Startup Lisboa..... 23
 - 4.3 Build Up Labs..... 24
- 5 FINDINGS..... 26
 - 5.1 Giving possibility of virtual incubation..... 26
 - 5.2 Providing infrastructures and co-working spaces..... 27
 - 5.3 Providing customized support and advice 28
 - 5.4 Providing community building opportunities 30
 - 5.5 Enabling knowledge transfers 32
 - 5.5.1 Building a community to help knowledge transfer 32

5.5.2	Matchmaking with mentors and partners to enable knowledge	33
5.6	Matchmaking with stakeholders	34
5.6.1	Connecting start-ups with potential Investors	34
5.6.2	Connecting start-ups with potential partners.....	35
5.7	Promoting conferences and sustainable initiatives	36
6	DISCUSSION	40
7	CONCLUSION.....	42
8	REFFERENCES	43
9	APPENDICES	47
	Table 1 - Primary Data of HIESE.....	47
	Table 2 - Primary Data of Startup Lisboa.....	47
	Table 3 – Primary Data of Build Up Labs.....	48
	Table 4 – Secondary Data of HIESE	48
	Table 5 – Secondary Data of Startup Lisboa	51
	Table 6 – Secondary Data of Build Up Labs	53
	Table 7 – Characteristics of studied business incubators	55
	Table 8 - Data Structure.....	56
	Table 9 – Coding Table	57
	Table 10 – Findings Table	63

1. INTRODUCTION

According to Rede Nacional de Incubadoras e Aceleradoras, in the end of 2020, Portugal had about 169 business incubators all over the country, which represented a growth of almost 40% since 2016 (*Monitorização Das Incubadoras Portuguesas 2020*, n.d.). These incubators have generated thousands of start-ups, putting Portugal at the top on the number of unicorns: seven of these start-ups are worth 38 000 million euros and have created 70 000 jobs.

The purpose of a business incubator is to help entrepreneurs creating and growing their businesses by providing assistance and access to tangible and intangible resources (Bruneel et al., 2012). Entrepreneurial support organization can help environmental impact start-ups to overcome many of their daily challenges by fulfilling their lack of financial network and business knowledge, playing a big role as network intermediaries on innovation and sustainability transitions. (van Rijnsoever, 2022).

Start-ups are drivers of economic growth and innovation and, as flexible organizations, they can easily implement business models or new technologies (Dean & McMullen, 2007; van Rijnsoever, 2022). More than large and older firms, start-ups are able to transform industries and push the sustainability transition (Hockerts & Wüstenhagen, 2010; van Rijnsoever, 2022). Recent research defines entrepreneurship for sustainable development (ESD) as “the discovery, creation, and exploitation of opportunities for (future goods) and services that simultaneously sustain the natural and social environment and provide economic and non-economic gains for others” (Johnson & Schaltegger, 2020, p. 1141). van Rijnsoever (2022) used this definition to characterize sustainable development start-ups as ventures which aim to create economic, social, and environmental value. Hockerts and Wüstenhagen (2010) on the other hand, used “sustainability start-ups” to define start-ups whose value proposition includes not only economic gains but also a positive effect on society and the environment. Considering the several terms found on the literature and the fact that, as young and small ventures, start-ups lack resources to exploit opportunities that result on both social and environmental gains, start-ups begin addressing solely one of those dimensions (Hockerts & Wüstenhagen, 2010). That is why, along this dissertation, I will be focusing on start-ups focused on the environmental dimension, calling them environmental impact start-ups.

However, among researchers, there's no consensus on the effectiveness of business incubators, which considers the chances of survival and growth of incubated start-ups (van

Weele et al., 2017). One reason why this may happen, the same authors argue, is because start-ups, based on their perceptions, are not taking advantage of available resources. But we don't know how business incubators are supporting environmental impact start-ups, and how are these start-ups benefiting with the resources and services provided by business incubators. This dissertation aims to fill a research gap on the components of entrepreneurial support provided by business incubators to environmental impact start-ups and if the latter are finding it useful. To do so, my dissertation tries to answer the following research question:

“How are business incubators supporting environmental impact start-ups and how start-ups perceiving this support?”

This question has academic relevance as I propose to fill a research gap on business incubation literature, but it also contributes to the literature on entrepreneurship and sustainability, since I try to understand how to support start-ups that are trying to contribute to sustainability. My results are particularly relevant for business incubator managers because I explored critical points and improvement areas of the incubation process for environmental impact but also non-impact start-ups. To answer my research question, I used a qualitative method. I conducted a comparative case study, comparing three Portuguese business incubators: HIESE, a business incubator located in the municipality of Penela, in Coimbra; Startup Lisboa and Build Up Labs, two business incubators located in Lisbon.

The rest of this thesis is organized as follows: I begin by outlining the existing literature on the role of business incubators, how the value proposition of these organizations has matured over time, highlighting the existing gaps in the literature. At the end of the chapter, I define and discuss the research done on environmental impact start-ups. On the methodology chapter, I justify my choice of a qualitative approach and my decision of going with a comparative case study. On the empirical setting chapter, I describe the three selected cases in more detail, by explaining the process of incubation and services provided. The findings chapter is where I present the results of my investigation, comparing business incubators and matching the information with the insights given by incubated start-ups. On the discussion section, I present my interpretation of the findings, considering the literature review done on the topic. Lastly, I move on to the conclusion, answering to the research question and summarizing my findings. This is where I present recommendations and address the main limitations of this research, naming possibilities of future research.

2. LITERATURE REVIEW

The review of the literature shows that there are three generations of business incubators (Bruneel et al., 2012): the first is focused on the provision of physical infrastructures, the second is providing business support, and the third one is adding network opportunities in the equation. The level of intervention on support provided can vary according to the development stage of the start-up or experience of entrepreneurs (van Weele et al., 2017). Moreover, transfers of knowledge are sources of entrepreneurial opportunities (Cantù, 2017), being also part of the job of business incubators to connect and build ties among start-ups and external entities (van Rijnsoever, 2022). Furthermore, the behaviour and attitude of managers plays a role on business incubation effectiveness (Nair & Blomquist, 2021). At last, one key take-away of this chapter is the research gap on the business support provided to environmental impact start-ups but also what are the advantages start-ups are taking from it. Given the transformative role that environmental impact start-ups have on sustainability transition, coaching provided should be in line sustainable oriented methods as well as training in impact management (Olteanu & Fichter, 2022)

In this chapter, I start by presenting a definition of a business incubator, discussing how the entrepreneurial support provided by this organization matured over the years, and present what was done on the research field regarding the topic. Finally, I present a definition of environmental impact start-ups, highlighting the research gap on how business incubators are supporting this type of start-ups.

2.1 Entrepreneurial support and business incubators: a definition and its evolution

Entrepreneurial support (ES) was previously defined as a “provision of valuable resources to entrepreneurs by individuals or organizations, which carry structured activities to facilitate the imminent establishment of a new independent firm, increase survival chances, or promote long-term growth” (Ratinho et al., 2020, p. 2). Among scholars, this subject has been gaining importance for three main reasons. To start, studies suggest that small new firms are contributing a great amount on job creation. Second, there’s a push of governments and institutions to incentivise entrepreneurship. And lastly, as researchers started narrowing and specializing the in different types of support mechanisms there are journal and conferences fully dedicated to the topic (Ratinho et al., 2020).

The assistance role for new ventures is performed by entrepreneurial support organizations (ESO) such as: incubators; science parks; accelerators; maker spaces; and co-working spaces, happening before and during the start-up growth process (Bergman & McMullen, 2022). On the next sub-sections I present the definition of business incubator (BI) and describe how these institutions have evolved over time.

2.1.1 Business incubator: a definition

In 2002, the European Commission defined a business incubator as “an organization that accelerates and systematizes the process of creating successful enterprises by providing them with a comprehensive and integrated range of support, including: incubator space, business support services, and clustering and networking opportunities” (Bruneel et al., 2012, p. 111). Identifying the benefits on start-up growth and survival, the EC argues as well that each BI is different due to the level of expertise, knowledge, network quality and size (EC, 2002).

Researchers agree that the purpose of BIs is to diffuse and cultivate entrepreneurial activity while supporting entrepreneurs (Bergman & McMullen, 2022) (Kakabadse et al., 2020). According to Bergman & McMullen (2022), incubators are “property-based organizations with identifiable administrative centres focused on the mission of business acceleration through knowledge agglomeration and resource sharing” (Bergman & McMullen, 2022, p. 691). In the literature, researchers agree on four particular characteristics of business incubators: being a shared facility for start-ups; providers of support services that help entrepreneurs to face high costs; providing mentoring and business advice; and, lastly, creating networking possibilities (Bergek & Norrman, 2008, p. 21).

As these ESOs evolved over time, it is easy to distinguish and separate them in generations, since the type of support given also grew and its importance changed. The following sub-section gives an overview on the three generations of BIs.

2.1.2 Three generations of BIs

Investigation on how the BI paradigm evolved over time (Bruneel et al., 2012), divided them in three generations regarding their value proposition. On the first generation, in the 1950s, BIs’ were just providers of a shared physical space, where multiple companies could be fixed and co-work. From the 1980’s onwards and understanding how business support was critical to companies’ success, BI’s value proposition expanded to include training and support

services. The third generation of BIs, emerging on the 1990s, not only was providing access to coaching and training services, but also to networking opportunities (Bruneel et al., 2012). Trying to understand to which extent, the premises of each BI group are meeting incubates' needs, Bruneel et al. (2012) came to the conclusion that companies in first and second generation BIs are less interventive, supporting fewer companies in comparison with third BI's generation. Companies in first and second BI generation are then similar to the ones established in science parks, "managed property-based organizations focusing on supporting businesses through knowledge intensification and resource sharing" (Ratinho et al., 2020, p. 8). Moreover, third generation BIs is much more focused on the selection criteria and to achieve the highest turnover possible. As a path for future research, the authors suggested focusing as well on virtual BIs, which can be particularly interesting since the COVID-19 pandemic and migration crisis.

For a better understanding on how incubation centres can foster entrepreneurial success, on the next sub-section, I explain how BIs build their own model and value proposition.

2.2 How does business incubators work

The process of business incubation is composed by three major components : selection, business support and mediation (Bergek & Norrman, 2008). The selection phase is where incubators select the project or ventures more suitable; when selected, the start-up receives business and entrepreneurial support, access to a wide range of services and knowledge as well as networking possibilities. The final stage of the process is the exit stage, where start-ups leave the business incubator

2.2.1 Selecting start-ups

According to Bergek & Norrman (2008), selection is an important part of the job for BI managers' because this process includes not only the criteria used to pick start-ups but also the flexibility on applying it. Regarding criteria, potential of the business idea or the abilities of the team are the most named ones, which entails different skills of the BI managers, such as knowledge on specific technology fields, or being able to evaluate whether or not the entrepreneur has enough experience to pursue their business idea (Bergek & Norrman, 2008). How rigorous are managers employing these criteria, the same authors described two types of approaches: managers can adopt the "picking-the-winners" strategy, which implies more

rigidness on the criteria evaluation, or the “survival-of-the-fittest”, where managers are much more flexible, letting markets show whether the start-up will survive. In the end, each business incubator positions itself differently when selecting start-ups, which results in very different portfolios among them.

The selection process is an important step for both parties. In fact, some BIs are best suited than others to help incubates to thrive (Klingbeil & Semrau, 2017). Research that took into account characteristics such as size, or age of the BI concluded that high-tech start-ups benefit the most out of bigger BIs, while low-tech ventures suffer within this environment (Klingbeil & Semrau, 2017). It is still left to understand the needs of environmental impact start-ups and what are they looking for when applying to a specific BI.

As society, governments and industries are rethinking ways to be more environmentally sustainable it would be interesting to understand if BIs are rethinking their admission criteria or being more flexible towards sustainable business models start-ups.

2.2.2 Providing business support

In relation to business support, incubators can be in between a “strong intervention” and a “laissez-faire approach”. The literature on ESOs, states that it is better to adopt a laissez-faire approach in comparison with a “heavy-handed intervention” (Bergman & McMullen, 2022). This happens because these organizations may want to keep distance and have no responsibility on venture failures. However, conducted research on BIs specifically (van Weele et al., 2017) shows different results: the level of intervention was in fact dependent on the development stage of incubated start-ups. Business incubators adopted a stronger intervention on start-ups at their early stage: through aggressive coaching sessions and mandatory participation in master classes (van Weele et al., 2017). On the other hand, as entrepreneurs start to identify better their problems, objectives are well defined, or when the start-up is at a more mature level, BIs adopted a laissez-faire approach, favouring a demand driven approach (van Weele et al., 2017).

From an entrepreneurial perspective, studies also tried to understand how useful were BIs (Albort-Morant & Oghazi, 2016), focusing on the advisory services provided (business training, developing marketing plans, financial assistance or accounting). Through a qualitative approach, the authors concluded that young entrepreneurs with high education degrees and professional experience are the ones who benefit the most out of the participation in BI

programs. One important limitation of this study is the fact that it doesn't consider other aspects of an incubator such as the infrastructure or the network access, which can widely help start-up development. According to (van Weele et al., 2017) there are several reasons why entrepreneurs might not use BI's resources: its quality is insufficient; incubators are unable to customize support and resources to each start-up; lack of knowledge on the start-up side on what resources it actually needs and that's the reason why, there's no consensus among researchers whether business incubation plays a positive or negative role on start-ups (van Weele et al., 2017).

2.2.3 Acting as mediators

Finally, mediation is related with network creation, internal and external to the organization: working as a mediator can help entrepreneurs easier access to capital, knowledge, and human resources (Bergek & Norrman, 2008; Ebbers, 2014). For start-ups, incubator managers' play a significant role because they can help to have access to additional resources and business opportunities that otherwise would not be possible (Ebbers, 2014).

Cantù (2017) built on the knowledge spill over theory of entrepreneurship to point out how transfer of knowledge can be a source of entrepreneurial opportunities. The author conducted qualitative research that gathered incubator managers and start-up founders, to understand what kind of knowledge spill overs are influencing start-up development. It was found that the relationship between the incubator and its business partners influences and mediates the relationship of incubated start-ups. Moreover, these relationships can be a source of entrepreneurial opportunities and are built up on business relational proximity (Cantù, 2017).

Community-building (among incubated start-ups) and field-building (network with non-incubated start-ups) are two support processes that BIs are in charge to, and that have the possibility of creating ties between agents (van Rijnsoever, 2022). As a matter of fact, the authors concluded that a strong network between start-ups, more than the shared office, is fundamental to overcome a weak financial support network. Future research suggestions is, for example, how BIs contribute to the creation of a strong network between start-ups (van Rijnsoever, 2022).

The role of BIs as mediators has been addressed on the literature. Having access to wide networking opportunities is crucial to start-up survival. What is still missing on the research field, is what are incubators doing for environmental impact start-ups. As this new businesses and ventures represent an opportunity to make the transition to sustainable, circular or

regenerative business models, one of the goals of my research is to understand how incubators are supporting these start-ups in terms of mentoring and mediation.

2.2.4 Role of business incubator managers and its effect on start-ups

Building on previous research, Kakadse et al. (2020) tried to understand BI managers' perception on what their role is. The results show that incubator managers perceive their primary role as a support role for entrepreneurs (Kakabadse et al., 2020). Moreover, managers feel the pressure of losing their value-added business support when engaging with too bureaucratic routines when they should be mostly focused on working alongside with start-ups.

Many studies on business incubation have their focus on the role of these organizations in the creation of networking possibilities to start-ups (Bruneel et al., 2012). Other researchers adopted a behavioural perspective to understand the role of docility of the business coach during the incubation process: not only resources and coaches' capabilities but also their behaviour and attitude play a role on business incubation effectiveness (Nair & Blomquist, 2021). Docility driven interventions, such as providing instructions or embracing spontaneity when engaging with start-ups, resulted in a shared understanding of the incubation process. This understanding might help start-ups identifying better their needs, which can influence their use of services and resources provided by the organizations (Nair & Blomquist, 2021). Researchers have not yet approached the role of BIs managers on sustainability transition by supporting environmental impact start-ups. Additionally, it would be interesting to understand how these start-ups are taking advantage of the resources and services provided. On the next section, I define what an environmental impact start-up is as well as its role on making the transition towards sustainable business models.

2.3 Start-ups as sustainability transition enablers

Sustainable development start-ups (SDS) are small, agile ventures whose business model tackles social and environmental challenges. Two major disadvantages that these start-ups face when comparing with non-sustainable ones is the fact that SDSs are less attractive to investors and, when they are technology-based, investment needed is greater (van Rijnsoever, 2022). Building on this definition, van Rijnsoever (2022) describes that entrepreneurial support organizations can help start-ups overcome the lack of financial support by connecting them

with VCs and through matchmaking with external partners. The author argues also that these organizations play a big on innovation and sustainability transitions.

Start-ups have an important transformative role at fostering the transition sustainability (Olteanu & Fichter, 2022). These enterprises can be classified in several types according to their transformative orientation towards sustainability, this means, how are start-ups prioritizing their environmental and social impact: for example, ‘Sustainability transformers’ are prioritising environmental and social impact and their planned market impact is also big; whether ‘Biopreneus’ give this subject a big highlight but their planned market impact is lower. (Olteanu & Fichter, 2022, p. 11). One interesting implication of this result, the authors argue, is the need to approach “sustainability-oriented method and tools for startup coaching and business model development (...) and training in impact management” (Olteanu & Fichter, 2022, p. 14).

In conclusion, focusing on the role that entrepreneurial support organizations have on the survival and development of start-ups, and assuming the importance these last have on innovation and transformation towards sustainability, I propose to answer the following research question: “How are business incubators are providing to environmental impact start-ups and how start-ups perceive this support?”.

3 METHODOLOGY

The methodology section is divided in three parts. I start by presenting the research design, where I explain my choice of a qualitative method to answer my research question. The second part concerns the data collection, where I describe how I got the primary and secondary data for the selected cases. Finally, I present a description of the analysis done with a coding method.

3.1 Research design

The purpose of this research was to explore and understand in-depth an under investigated topic in the management research field: how business incubators are supporting environmental impact start-ups developing their own businesses, and how are start-ups perceiving this support. To do so, I adopted a qualitative approach that allowed me to understand the social context and the relationships between business incubator managers and founders or managers of incubated start-ups (Rynes & Jr., 2004). Applying a qualitative method for this investigation was extremely useful as the environment inside a business incubator can be widely multicultural and business opportunities and decisions come from network and social contexts (Birkinshaw et al., 2011). Moreover, as I got in touch with BI's managers and start-up founders through interviews, I was able to get more insights on the perceptions and experiences they have (Graebner et al., 2012).

I chose a comparative case approach to answer my research question: I explored three Portuguese business incubators and spoke with environmental impact start-ups incubated on each of them, so I could have a better sense of how different business incubators are approaching this topic, if start-ups are taking advantage of resources and services available depending on their development stage, incubation model and so on. By being able to compare differences and similarities within my chosen cases, I got more robust results and stronger conclusions (Ozcan et al., 2017; Yin, 2009).

While defining the scope of my research, I started to contact circular economy start-ups. I reached out to The Loop co., ZOURI SHOES, Eco X, Nam, and Exo-Team. The first three were positive regarding their participation on my investigation and I was able to have an online conversation with: Ricardo Morgado, co-founder and head of circular economy at The Loop co.; Adriana Mano, founder of ZOURI SHOES; and César Henriques, the founder and manager

at Eco X. When I decided to investigate business incubators, I reached out to the following incubators by e-mail: Instituto Pedro Nunes Incubator; Demium; Fábrica de Startups; HIESE; Build Up Labs; Startup Lisboa and UPTEC. I didn't get feedback from Fábrica de Startups and Demium is not collaborating with thesis investigations. I also tried to reach out to few impact business incubators through LinkedIn, namely: Casa do Impacto; Impact Hub Lisbon; and MAZE but I didn't get feedback in time to pursue the research.

Therefore, I was able to investigate three incubators: HIESE, Build Up Labs and Startup Lisboa, visiting the facilities of the last two. The three of them are supporting different kinds of start-ups where sustainable business model ventures are included. In order to recognize and interpret the support provided by these incubators, I asked if I could attend meeting and mentoring sessions with start-ups that met the scope of my research. However, due to confidentiality issues, I wasn't allowed to. Regarding incubated start-ups, I got to one from HIESE; one from Startup Lisboa; and two from Build Up Labs.

3.2 Data collection

To meet the goal of my research, I collected primary and secondary data. Regarding primary data, I conducted online and onsite interviews and collected direct observations (Table 1 - Primary Data of HIESE Table 2 - Primary Data of Startup Lisboa Table 3 – Primary Data of Build Up Labs). In total, I had ten interviews, including BIs and start-ups: four for the HIESE case, five for Build Up Labs and two for Startup Lisboa. Additionally, I was able to visit both Build Up Labs and Startup Lisboa.

Table 1 - Primary Data of HIESE

Type of data	Name	Organization	Position in the organization	Data of the interview	Length of the interview
Interview 1	César Henriques	EcoX	Founder	25 th October	31 min

Interview 2	Salomé Dias	HIESE	Project Manager	11 th November	30 min
Interview 3	Joaquim Sousa	HIESE	CEO	14 th November	25 min
Interview 4	César Henriques & Guilherme	EcoX	Founder, Bus. Developer	28 th November	27 min

The author

Table 2 - Primary Data of Startup Lisboa

Type of data	Name	Organization	Position in the organization	Date of the interview	Length of the interview
Observtion		Startup Lisbpa			45 min
Interview 5	João Nuno Rosado	Startup Lisboa	Investment and mentorship manager	28 th November	31 min
Interview 10	Paulo Fernandes	O Beneficio	Co-founder	13 th December	26 min

The author

Table 3 – Primary Data of Build Up Labs

Type of data	Name	Organization	Position in the organization	Date of the interview	Length of the interview
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Interview 6	Raquel Santos	Build Up Labs	Startup Happiness Officer	15 th November	30 min
Observation		Build Up Labs		15 th November	45 min
Interview 7	Raquel Santos	Build Up Labs	Startup Happiness Officer	21 st November	25 min
Interview 8	Emiliano Gutiérrez	Raiz Vertical Farms	Co-Founder & CEO	22 nd November	20 min
Interview 9	Carolina Zurzica	Go Bananas		30 th November	

The Author

At HIESE, I interviewed the executive director, Joaquim Macedo de Sousa, and the project manager, Salomé Dias, who I had the chance to meet during the WebSummit. I also had the opportunity to interview César Henriques, founder and manager of ECO X, whose business model is based in circular economy, where used cooking oils are transformed in biodegradable detergents with the same efficiency as established competitors in the market (*Home - Ecox*, n.d.).

At Startup Lisboa, I got the opportunity to meet the office and interview João Nuno Rosado, the Investment and Mentorship Manager, and Paulo Fernandes, co-founder of O Benefício, a start-up incubated at Startup Lisboa who's producing value added products, in limited quantities, valuing artesian and national production and reusing materials (*O Benefício*, n.d.).

When visiting Build Up Labs, I was able to get to know Raquel Santos, Startup Happiness Officer, who showed me the facilities, meeting rooms, offices and common areas. I interviewed Emiliano Gutiérrez, CEO and founder of Raiz Vertical Farms, incubated at Build Up Labs, with the mission of growing vegetables in the city, decentralizing the food system while using sustainable technology (*Raiz Vertical Farms*, n.d.). And lastly, I got to interview Carolina Zurzica, Marketing Chief Officer at Go Bananas.lx, a circular business model start-up using wasted bananas to produce ice-cream also incubated at Build Up Labs (*Ice Cream | Gobananas*, n.d.).

During the interviews I explored mainly the following topics: the history of the BI or start-up; the selection process and criteria; business support and advice provided; the networking opportunities provided, narrowing it to the impact and sustainability initiatives, experts or practices they were putting into practice. At the end, I asked for some documented information that I could consult or take with me and if there was someone else, I could interview regarding this topic. The interviews were held either in Portuguese or English and recorded, with the participant's permission.

Regarding secondary data, I used mainly websites and newspaper articles, social media to collect more information (see Appendix: Table 4 – Secondary Data of HIESE Table 5 – Secondary Data of Startup Lisboa Table 6 – Secondary Data of Build Up Labs. I looked at data produced from 2017 onwards as this allowed to understand better the visibility, performance, activities and events organized by of each business incubator.

Using different sources of secondary data, on top of interviewing business incubator managers and respective incubated start-ups, helped me to triangulate the data, avoid biases and support better my findings.

3.3 Data analysis

When I finished the process of data collection, I started to analyse it, using a coding method. I selected, categorized, and labelled the data with codes. Codes and categories came from the literature review conducted, from the research question and data collected (Table 8 - Data Structure; Table 9 – Coding Table). First-order codes were aggregated in conceptual categories, and each category was part of an aggregate dimension. The coding table (Table 9 –

Coding Table has on its first column the conceptual categories, derived from codes, and displaying quotations that I took from the interviews on the second column.

A first-order code that I took from the literature was “demand driven support”, and I used it to code the following quotation: *“From this moment, we have no schedule or structured program. But it is as we go. We have a community on Slack, where we share our availability and whenever they have a question or want our opinion, we give them feedback. And it goes like this”* (Interview of Raquel Santos, startup happiness officer at Build Up Labs). On the contrary, I constructed a new code, “networking events” code the following sentence: *“We organize networking events, so entrepreneurs can share with each other some of their struggles, because sometimes problems are the same for start-ups and with these opportunities, they are also able to advise each other. And this is very important.”* (Interview to Salomé Dias, project manager at HIESE).

4 EMPIRICAL SETTING

With the purpose of answering this dissertation's research questions, I selected three Portuguese incubators: HIESE, Start-up Lisboa and Build Up Labs. In this chapter, I present the three incubators regarding their history, location, size, merits, major events, and latest news. Table 7 – Characteristics of studied business incubators (see Appendix) summarizes the main characteristics of these three business incubators.

4.1 HIESE

HIESE (Habitat for Business Innovation in Strategic Sectors) was founded in 2016, in Penela. The incubator was born from the partnership between Instituto Pedro Nunes business incubator, and the Municipality of Penela (*HIESE – Habitat de Inovação Empresarial Nos Sectores Estratégicos*, n.d.-a). Instituto Pedro Nunes was created in 1991 as a non-profit organization to promote innovation and today, the institute acts in three main areas: R&D; acceleration of business ideas; and training and transferring knowledge to enterprises (*IPN - Instituto Pedro Nunes*, n.d.-a). As a business incubator, born in 2002 with the collaboration of the University of Coimbra, IPN had supported over 380 companies, with 70% survival rate for supported start-ups and 3,250 highly qualified jobs created until 2019 (*IPN - Instituto Pedro Nunes*, n.d.-b).

HIESE's mission is to provide support to entrepreneurs and bring innovation to rural areas. Penela is a territory losing its population density and the BI's purpose is to attract and retain talent in the region: by providing entrepreneurs the possibility to start their own business and create job opportunities there (Interview of Joaquim Sousa, CEO of HIESE). As a Smart Rural territory, HIESE has six strategic sectors such as: agribusiness; forestry; clean energy; environment, circular economy, and bioeconomy; tourism products and services; and information and communications technology (*HIESE – Habitat de Inovação Empresarial Nos Sectores Estratégicos*, n.d.-a).

The incubation process can happen in two different formats: physically or virtually. Regarding facilities, the incubator can welcome fifteen companies, and has a co-working space. As for services provided, HIESE gives assistance in legal, accounting, financing, and investment topics; offers acceleration programs; consulting, training and mentoring programs.

After receiving applications and respective business plans, the managers and external consultants evaluate candidates based on the following criteria: market potential; profitability; network possibility, either with universities and other incubated start-ups and the candidate's capabilities (*HIESE – Habitat de Inovação Empresarial Nos Sectores Estratégicos*, n.d.-b). Applications must be within the industries previously, and all the information regarding the process can be found in “Regulation of HIESE” document.

The physical incubation can last for 60 months, and the virtual incubation has a duration of three months but is automatically renewed at the will of both parties (*HIESE – Habitat de Inovação Empresarial Nos Sectores Estratégicos*, n.d.-a).

Nowadays, HIESE is supporting 48 start-ups either virtually or physically incubated (Interview of Salomé Dias, project manager at HIESE).

4.2 Startup Lisboa

Startup Lisboa, founded in 2011 by the Municipality of Lisbon, Montepio and IAPMEI (Portuguese Agency for Competitiveness and Innovation), began its activity in February 2012 (*Info & Stats — Startup Lisboa*, n.d.). From 2016, other three partners joined Startup Lisboa: Delta Cafés, Roland Berger and Católica-Lisbon Center for Technological Innovation & Entrepreneurship (Interview of João Rosado, investment and mentorship manager at Startup Lisboa).

As a private non-profit organization, its purpose is to provide support to start-ups by acting as a facilitator: by connecting entrepreneurs to investors and mentors; linking them to strategic partners, and potential customers (*Info & Stats — Startup Lisboa*, n.d.). The business incubator is not specialist in any specific industry or business model but focuses particularly in early-stage start-ups, within three years of existence (Interview of João Rosado, investment and mentorship manager at Startup Lisboa)

Candidates can apply to the incubation program any time of the year, but applications are evaluated every trimester (*FAQ — Startup Lisboa*, n.d.). Usually, Startup Lisboa receives 250 applications every quarter, and its team selects from 25 to 30 applications to be evaluated by a jury (Interview of João Rosado, investment and mentorship manager at Startup Lisboa). This jury is composed by Startup Lisboa members, investors, mentors, alumni, and experienced entrepreneurs. From those 25-30 applications, the jury picks between 10 to 15 start-ups (Startup

Lisboa, n.d.) (Interview of João Rosado, investment and mentorship manager at Startup Lisboa). Additionally, through a scouting system, the business incubator selects up to ten start-ups from each cohort that come from venture capitalists (VCs) and partners. In the end, each cohort has 25 to 30 start-ups (Interview of João Rosado, investment and mentorship manager at Startup Lisboa). Maximum incubation period is five years, three of them using physical spaces if wanted (*FAQ — Startup Lisboa*, n.d.).

The selection criteria looks specially to the disruptive potential of the industry; how scalable the business model can be; how global is the solution; if it his financially sustainable and has growth potential; the team and respective product are also taken into consideration (Interview of João Rosado, investment and mentorship manager at Startup Lisboa) (*FAQ — Startup Lisboa*, n.d.).

In October 2022, Startup Lisboa together with Associação para a Inovação e Empreendedorismo de Lisboa, launched a new brand: “Unicorn Factory”. The goal is to have a platform that aggregates all the early-stage programs (ideation, acceleration, and incubation), scaling up programs and innovation-focused hubs (Interview of João Rosado, investment and mentorship manager at Startup Lisboa) (*Home • Unicorn Factory Lisboa*, n.d.).

Since 2012, Startup Lisboa has supported more than 466 start-ups, which created more than 5.000 jobs created and raised more than 410M€ of investment, from the 466 start-ups, 52% are still alive (Interview of João Rosado, investment and mentorship manager at Startup Lisboa) (Startup Lisboa, n.d.). Regarding facilities, the incubator owns a workspace located at Lisboa downtown; one residence exclusively for entrepreneurs (Casa Startup Lisboa) and two other incubation spaces coming soon (one for Food&Beverage and Hub Criativo do Beato) (Startup Lisboa, n.d.). Currently, the BI is supporting 122 start-ups from all the world, 15 of which are impact start-ups (Interview of João Rosado, investment and mentorship manager at Startup Lisboa).

4.3 Build Up Labs

Build Up Labs belongs to the Comon Group, previously a marketing agency that works nowadays as a creativity consultant in Portugal, with expertise in brand transformation, employer branding, and digital transformation. As a spin-off, Build Up Labs was founded in

2014 as a start-up studio, creating their start-ups. The administration is the same, with the same co-founders but with a different team. With Build Up Labs, the company's purpose was to create their own products, instead of doing projects for others (Interview of Raquel Santos, start-up happiness officer at Build Up Labs).

Build Up Labs Incubator was founded in 2020, in Lisbon. Its mission to “help founders build and grow their business”. The incubator developed a start-up program that grants networking and partnership opportunities, along with a mentorship program (*Build Up Labs – Startup Studio in Lisbon Portugal*, n.d.)

All the companies of the Comon Group share the co-working space, at HOOD building in Lisbon, since 2015. Previously a parking lot, the group wanted to create a collaborative atmosphere with all the group community others (Interview of Raquel Santos, start-up happiness officer at Build Up Labs).

There are several pairs of shoes decorating the walls of the building since one important value of the group is “Empathy”, incentivizing the idea of “putting yourself in someone else's shoes” others (Interview of Raquel Santos, start-up happiness officer at Build Up Labs).

Build Up Labs is not focused on any particular industry however, regarding selection criteria, the business incubator's teams takes into account, not only the business potential of the idea and capabilities of founders, but also their own capacity and resources to successfully support start-ups.

The organization has several services available including: advisory and guidance, with regular meetings with the start-ups incubated; support network, composed investors, mentors, corporates, and tech experts; easier access to few software's, platforms, or service providers; and a co-working space.

The duration of the incubation program is not defined, and the applicant does not need to be in Lisbon to do so. Also, at Build up Labs, start-ups can apply on different stages of development: whether it is starting the business or growing customer base.

5 FINDINGS

As the literature review chapter showed, the investigation on how business incubators are supporting environmental impact start-ups has limitations and there are no studies on top journals. Due to this, and to understand how business incubators are providing business support to these start-ups, I studied three business incubators: HIESE, and one of its incubated start-ups (EcoX); Startup Lisboa, conducting an interview to one incubated start-up, O Benefício; and Build Up Labs, conducting also interviews to two of its incubated start-ups (Raiz Vertical Farms and Go Bananas). As described in the methodology chapter, I coded the data collected with labels so I could divide it and analyse it better.

My findings are divided into eight sections, each of them describing different strategies that business incubators are using to support these environmental impact start-ups, for every strategy I provide assessment of the start-ups interviewed.

5.1 Giving possibility of virtual incubation

One of the most important premisses of business incubation was for many years the provision of an infrastructure that start-ups shared to work. However, during my research I found out that support strategy adopted by BIs is giving start-ups the possibility of being virtually incubated. This allows them to be established in other cities or countries and facilitate processes. The three-business incubator's analysed are allowing start-ups to be virtually incubated. Not withstand, all of them are still able to provide offices and space for start-ups. While speaking with incubator's managers and start-ups I was able to get some insights on how this is happening.

HIESE's virtual incubation program has a duration of three months and is up to renewal at the will of both parties, with the same duration period. While speaking with HIESE's project manager I was told that this strategy is common on a pre-physical incubation phase that has a duration of 60 months. Considering the roots of HIESE and goal on fighting low population density in Penela, physical incubation is still an important support strategy, even though meetings and remote work are becoming a norm.

On the other hand, the incubation program at Startup Lisboa is solely virtual. The incubation model is the same for incubates wherever they are: for Startup Lisboa there's no physical incubation and remote incubation, the value proposition of the BI is that the mentoring

program, matchmaking process, partnerships, VCs, and access to the community is available for everyone, everywhere. Co-working spaces or private offices are additional services that the BI can provide start-ups with (Interview of João Rosado, investment and mentorship manager at Startup Lisboa):

“The incubation is not something physical vs virtual. Incubation exists in what our product roots are, which can be anywhere in the world, you can access this. This means: mentoring, matchmaking, (...) these are thing you have access no matter what” (Interview of João Nunes Rosado, investment and mentorship managers at Startup Lisboa)

This incubation model is also adopted at Build Up Labs. The BI began its activity during COVID and as told by Raquel Santos, startup happiness officer, almost none of the incubated start-ups is Portuguese, many of them also not being in Portugal. When interviewing Emiliano, founder of Raiz, mentioned the support given on materializing the start-up visa and incorporation of his start-up in Portugal:

“The first piece of support, very critical, Build Up Lads had given was the opportunity to access the Lisbon ecosystem. Both on the connection side but also on the legal side, very important.” (Interview of Emiliano Gutierrez, co-founder and CEO of Raiz Vertical Farms)

5.2 Providing infrastructures and co-working spaces

The conducted research shows that giving start-ups the access to co-working spaces and physical facilities is still present in the BI’s value proposition: not only it allows start-ups the access to a wide range of accommodations, but also it contributes to the exchange of knowledge between entrepreneurs, building the sense of community. Insights from incubated start-ups show that, as the working paradigm is shifting, the use of these spaces is decreasing.

In the beginning of the incubation process, physical facilities were quite important for EcoX. HIESE, lent the office and, as the company needed more space, connected them with stakeholders that provided it. Now, César Henriques gives less importance to the office, being

useful from time to time for meetings. This happens because either their work is at the factory or can be done through home office.

On the other hand, Paulo Fernandes, co-founder of Benefício considers the office at Startup Lisboa still very useful. At the beginning, the start-up needed space to work as that was the main reason why they applied to Startup Lisboa. Nowadays, even though work could be done anywhere, the start-up finds it more beneficial to work at Startup Lisboa:

“The primary reason why we applied was to have a place where we could manage our logistics, being able to receive and send stuff; have meetings, if necessary. Now, it is still important. We like to be there because we like Startup Lisboa.” (Interview of Paulo Fernandes, co-founder of Benefício)

For Raiz and Go Bananas, both incubated at Build Up Labs, the physical space is not quite useful. For Raiz, the location of the farm is not that close by to the BI. For Go Bananas, the option it’s not considered since the meeting point for the team is at the university. While visiting the facilities, I was able to see few entrepreneurs hanging out but Raquel told me it was an unusual day as most of the times, start-ups work from home:

“We began as an incubator during COVID, everything was done remotely (...) We are supporting many start-ups that are not in Portugal, almost none of them is 100% Portuguese.” (Interview of Raquel Santos, startup happiness officer at Build Up Labs)

5.3 Providing customized support and advice

One of the findings of this dissertation is that a key support strategy adopted by BIs is customizing the support according to the needs of the start-up and its team’s profile. There are multiple reasons why start-ups look business incubators, however results show that being able to receive mentoring and advice from BI’s managers and its partners are two of the most valuable services for start-ups. Moreover, when asked about use of specific tools for environmental impact start-ups (adapted business model canvas, for example), the three business incubators denied using them explaining that, independent of the type of start-up, the

process is similar to all of them but customizable: the design of the incubation plan, mentoring sessions and specific support is done according to their improving areas.

As a rural business incubator, HIESE works closely with entrepreneurs, with multiple joint reflection moments. Additionally, one critical piece of support that HIESE is providing its incubated start-ups, besides mentoring sessions with entrepreneurs, is that not only they inform start-ups of existing grants but also they're writing the applications, something done at HIESE but not at Startup Lisboa or Build Up Labs. The efforts done on applying for grants that support environmental impact start-ups were confirmed both by HIESE's project manager and the founder of EcoX, that explained how the BI complained and the classification was reversed, favouring the start-up. On the proximity work done with start-ups, César Henriques mentioned:

“The fact that they are in a rural area, there are not so many companies, and they obviously must seize the opportunities. They have to work and be close to companies (...) you end up creating relationships there, many closer connections and greater effectiveness” (Interview of César Henriques, CEO at EcoX)

Startup Lisboa provides its new entrants an organized mentoring program in order to stay close to start-ups and be attentive to their profile. This program as a duration of 12 weeks where, every Friday sessions are divided in two moments: training and a community moment between start-ups. The training is given with speaker from the BI's partners in several topics such as sales, fundraising, pitching, design, etc. The second moment is dedicated to community building, explained in detail on the next sub-section.

Furthermore, João Rosado explained that the second part of this support is given by the Startup Lisboa's team. With monthly meetings, the team evaluates the start-up's performance, and according with their goals, prepares an incubation plan. After that, the BI supports start-ups on the matters they want to deep dive and from that moment on, it's up to the start-up to ask for additional needed support.

This program was not mandatory for Benefício as both co-founders had entrepreneurial experience, one of them being mentor at Startup Lisboa before creating the company. However, during the interview, Paulo mentioned that the start-up also participates in the mentoring sessions for the community, when they are done physically. Meetings with Startup Lisboa's

team are done “*on the going*”, with no specific plan. A critical piece of support to the start-up is the advice provided:

“A big advantage of being at Startup Lisboa is being able to discuss with other your point of view, your business model. That’s it. Being able to share and have validation and other different inputs than two people can do” (Interview of Paulo Fernandes, co-founder of Beneficio)

Lastly, Build Up Labs makes an incubation plan together with the start-up the moment it enters the business incubator. This plan works as a roadmap for entrepreneurs: when they need to validate their business idea, Build Up Labs organizes a specific workshop they have developed on this. This plan is revised every three months and support is provided on a demand driven approach. While speaking with Raiz co-founder, Emiliano reinforced the importance of mentoring but highlighted as well that having an impact person on the BI team, using specific frameworks and a more structured approach around funding would be helpful on their business. For Go Bananas, mentorship is the biggest advantage of being incubated at Build Up Labs, since the start-up is at a very early stage and the team has not entrepreneurial experience. During our interview, Carolina, CMO at GoBananas, mentioned the patience, ability to listen and guidance of the BI’s team.

5.4 Providing community building opportunities

Community building is related with the social links and relationships between incubated start-ups. This is a support strategy that business incubator’s use because it allows start-ups to share doubts and contacts, with each other, learn, get it touch with trends and other industries which can be beneficial to their own business. Giving access to co-working spaces is a strategy that helps to create the sense of community within the incubator but as described in the previous sections, the use of this spaces is becoming less valuable for start-ups and BIs are also giving the possibility of virtual incubation. For those reasons, business incubator uses additional strategies such as private networking events with founders, using community platforms to reach out and connect start-ups (ex: Slack), or organizing workshops and mentoring sessions with all start-ups.

Organizing networking events is a strategy used by the three incubators. However, while interviewing César Henriques from EcoX, he mentioned that these moments should happen more often at HIESE, these opportunities end up being more organized by IPN, and at HIESE there's not that much knowledge on what other start-ups are doing.. For that reason, the sense of community is less felt in this business incubator.

For Startup Lisboa, offering the access to the community within the business incubator is one of the most valuable things the organization can provide. Most of the events and opportunities end up benefiting more the ones using the infrastructures or that are based in Lisbon, which in this case, is an extra-incubation service:

“Every Friday, we have here a lunch organized by one of our incubated start-ups, that invites all other to join. This is a moment of sharing and we, as Startup Lisboa, also organize plenty of events for our founders” (Interview of João Nunes Rosado, investment and mentorship managers at Startup Lisboa)

While interviewing Paulo Fernandes, co-founder of Beneficio mentioned that being able to work at the BI facilities is a much easier way to access the community when comparing with communication platforms:

“Being physically incubated makes it easier to have access to the community. With e-mails or through Slack... it's good but it is different. If you gathered few people in the end of the day to go and eat pizza or drink something, the community is different. We are speaking, some of them make a presentation, others a pitch, it goes like that” (Interview of Paulo Fernandes, co-founder of Beneficio)

Organizing events is also a strategy pursued also by Build Up Labs for community building. As a small BI's team, their focus when organizing event is to gather founders, giving them the chance of connect and exchange ideas. While speaking with Emiliano, co-founder of Raiz, he explained me that it is harder to meet other start-ups because many of them are working remotely but got to know a few start-ups during these networking events. Go Bananas, on the other hand, claims having the idea this community exists however has not been able to participate in these activities

5.5 Enabling knowledge transfers

One interesting advantage of being supported by an incubator is the possibility of having easier access to knowledge and learn from others. Again, on this matter, there are several ways in which a BI can make this happen: either through community building, learning from other start-ups; or by connecting incubated start-ups with mentors, experts and partners of the BI itself.

5.5.1 Building a community to help knowledge transfer

One way BIs support start-ups is by building a community. This community exists when the business incubator decides to bring start-ups together, as described in the previous section, BI create these opportunities is by giving access to co-working spaces, organizing private events, deliberately introducing founders, having mentoring sessions and workshops together with all incubated start-ups. This results in the sense of belonging and the opportunity to learn with peers: start-ups go through similar struggles, taking advice from them or even expand business possibilities by learning with other start-ups in different industries are two of the advantages that belonging to a community can bring.

As previously shown on this chapter, interviewed start-ups incubated at HIESE and Build Up Labs are using less the co-working space, it's harder not only to build the sense of community between start-ups but also harder to share knowledge among peers and see the advantages start-ups can take from this

Even though, having access to the co-working space is an extra service, at Startup Lisboa this is an important channel of knowledge transfer to start-ups and that the sense of belonging to this community is the biggest advantage a business incubator can offer. Notwithstanding the access to the community being easier for those in Lisbon, knowledge transfer among the incubated start-ups benefits everyone through digital platforms: part of the initial mentoring program, there's also a moment of community among start-ups, where all of them have to solve challenges together. Benefício is incubated at Startup Lisboa for five years and during our interview, Paulo Fernandes mentioned that through the community the company had the opportunity to expand further the production of physical goods and include also digital products:

“Because you can feel start-up’s rotativity, we see a big transformation in the type of company that is there. Previously there were many companies built for people (related with talent, human resources, things like that), nowadays, it is totally different with the digital world and Web3, and less Portuguese companies. We are very experimentalists, and we like very much to learn from others and that makes us grow as well” (Interview of Paulo Fernandes, co-founder of Benefício)

5.5.2 Matchmaking with mentors and partners to enable knowledge

One way in which BIs are enabling knowledge transfer is by connecting their own partners and external mentors with incubated start-ups. The network of the business incubator itself is a determinant of the support this one can provide. Connections to universities, investigation centres, and other experts can be a big plus to fulfil the gaps on support the BI’s team might have.

Being part of Instituto Pedro Nunes is a big advantage for HIESE because start-ups and the BI itself have access to a wider range of mentors and knowledge from IPN’s laboratories, doing research in multiple technological areas (automatics, materials, informatics, phytopathology, electroanalysis and geotechnics), this represents a power enabler of knowledge transfer. On support regarding sustainability and circular economy both the executive director of HIESE and the founder of EcoX mentioned the work and collaboration between LEDMAT, one of IPN’s laboratories the start-up, mentioning that this collaboration and learning process happens both ways. At Startup Lisboa, during the first month of the incubation program, start-ups get to know multiple mentors that can help them during the process. Moreover, through the BI communication channels, entrepreneurs are informed on new mentors available:

“We have what’s called ‘mentor madness’. You join Startup Lisboa and we try to introduce you to a group of eight to ten mentors, who you end up getting to know during that first month (...) Weekly, we share with our start-ups who are the new mentors available and make that introduction” (Interview of João Nunes Rosado, investment and mentorship managers at Startup Lisboa)

At Build Up Labs, when designing the incubation plan for each startup, the BI does the introduction to external mentors that might be useful in that moment. When the start-up needs expertise on other the subject, Build Up Labs makes that bridge. Additionally, the BI startup happiness officer mentioned that sometimes she felt the network they have is not enough to support environmental impact start-ups but since applications of these start-ups started growing, with the help of universities, the BI's network is also growing.

5.6 Matchmaking with stakeholders

A support strategy that BIs also put in place is by connecting start-ups with stakeholders that can be potential investors, clients, partners, or NGOs. This strategy is again very depending on how rich the network of the BI is itself but also the network of the BI managers.

5.6.1 Connecting start-ups with potential Investors

The results show that, both BI's and start-ups name getting investors and capital to accelerate and grow the business on of their biggest challenges. One way business incubators make this process easier for start-ups is by being actively looking for possible connections and maintaining relationships with investment funds.

HIESE finds critical the connection with venture capitalist because technology-based star-ups cannot survive solely with equity. For that reason, the business incubator maintains relationships with investment funds that are very close with sustainable business and renewable energy. Regarding this, César Henriques from EcoX mentioned that this connection with investors happened but also that the BI is constantly looking at the right options for the start-up.

For Startup Lisboa this a problem hard to solve if there are no grants or known public funds for sustainable businesses. To support start-ups on this, the BI takes use of their VCs network:

“What we have is a network of 98-99 VCs with whom we work, from all over the world. Some that are more impact, others that are more mobility, others that are more agriculture, food tech, etc. That ends up also sometimes supporting these types of start-

ups.” (Interview of João Nunes Rosado, investment and mentorship manager at Startup Lisboa)

Build Up Labs, on the other hand, connects start-ups with a partner with expertise in funding:

“As around sustainability there is much more access to grants, we make the introduction to a partner, which is specialist on everything that has to do with European grants and can advise better on which to apply for. Their business is to write and help with the application process, but it is not mandatory for the start-up up to do it with them” (Interview of Raquel Santos, startup happiness officer at Build Up Labs)

5.6.2 Connecting start-ups with potential partners

Making the connection with potential partners is also a support strategy pursued by business incubators. Using their own network, the BI can make the connection with entities that might facilitate and improve processes of the start-up businesses.

One important finding of this research is the role and importance of BI partners on helping start-ups turning their businesses more environmentally sustainable. This is particularly seen at HIESE:

“We have a business association called ‘Associação da Bioenergia Avançada’ and this entity creates a powerful network around sustainability, and in the case of energy transition on the transport matter, linked to advanced biofuels” (Interview of Joaquim Macedo de Sousa, the executive director of HIESE)

Startup Lisboa has a powerful network of partners at the disposal of its incubated start-ups. While speaking with Paulo Fernandes, from Benefício, he mentioned how it is harder for companies that are producing physical goods as these businesses are seen as less attractive for potential investors and partners. With respect to this, the business incubator launches acceleration programs such as From Start-to-Table, this one for start-ups in the restauration industry, gathering technology and new sustainable food & beverage products, that gave these

start-ups the possibility to connect with partners and mentors (*From Start-To-Table — Startup Lisboa*, n.d.).

On the other hand, at Build Up Labs, as a younger business incubator, the matchmaking with partners regarding sustainability and environmental impact start-ups is harder:

“We have a good network, but I don’t think it is sufficient (...). In what we can help is on how to make the start-ups business models financially sustainable, thinking about impact, but focusing more on building a strategy and roadmap and less in the specific product” (Interview of Raquel Santos, startup happiness officer at Build Up Labs)

During my interview with Carolina from Go bananas, she mentioned that the biggest source of contacts and partners they got was from the university ecosystem.

5.7 Promoting conferences and sustainable initiatives

The last support strategy for environmental impact start-ups I was able to identify during my research was the role that BIs have on promoting sustainable business models. This happens through the participation or organization of events and conferences dedicated to the topic; by promoting their incubated environmental impact start-ups or other business which bring a positive impact on the environment. This is an effective way to support start-ups as it not only allows them to advertise their businesses but also to improve it and incentivise other entrepreneurs to adopt sustainable practices.

One last interesting result of this research was that business incubators, in this case, HIESE, together with Instituto Pedro Nunes, are diffusing sustainable initiatives, promoting conferences on circular economy, and inviting incubated start-ups, like EcoX, to share their testimony

When it comes to green initiatives, Startup Lisboa has events, conferences, blog posts and newsletters dedicated to the topic. For example, in 2019, the incubator organized a conference on circular economy, exploring its challenges and opportunities (Startup Lisboa, 2019). In 2021, the BI organized a Green Week calling the attention of society to the importance of adopting sustainable business models (*Os Negócios Caminham Para Um Futuro Social e Ambientalmente Sustentáveis?*, n.d.). This year, Startup Lisboa created the “Think Green”

initiative on its blog, where it shared several tips and interviews to companies on how to integrate sustainability in business models as well as interviews with companies that adopted sustainable or circular business models (*Think Green with Book in Loop — Startup Lisboa*, n.d.). In 2016, Startup Lisboa initiated the project of building an innovation centre fully dedicated to entrepreneurship, creative industries, and sustainability: Hub Criativo do Beato (Interview of João Rosado, investment and mentorship manager at Startup Lisboa). The Municipality of Lisbon bought what was previously an industrial complex from the Portuguese Army and gave Startup Lisboa, the task of developing the idea, design and coordinating it (*About Us · Hub Criativo Beato*, n.d.).

“We also had Think Green, which aimed at promoting sustainable and green businesses, within Startup Lisboa and with a sustainable footprint(...)what we're going to do now is to launch a Green Tech program, a program to accelerate companies that are in the clean tech area and that, yes, is very connected with Hub Criativo do Beato, and that's where we're going to have this bet for the part of everything green” (Interview of João Nunes Rosado, investment and mentorship manager at Startup Lisboa)

Table 10 – Findings Table

Support strategies	HIESE	Startup Lisboa	Build Up Labs
Giving possibility of virtual incubation	Virtual incubation lasts for three months and its up to renewal at the will of both parties. Used as a pre-physical incubation strategy	Incubation is solely virtual and can last a maximum of 5 years	Only virtual incubation and maximum incubation period is not defined.
Providing infrastructures and co-working spaces	Access to private-office and co-working space when physically incubated. Start-ups can choose whether they	Co-working space or private office is an extra level of service on incubation model and has been a great enabler	Start-ups can use the co-working space and extra-incubation, they can rent an office/table

	want to use a private office or the co-working space	of community building and knowledge transfer	
Providing customized support and advice	Relational proximity between incubator's managers and start-up founders'	"Founder's first" perspective with a structured mentoring program when start-ups enter	Design of the incubation plan when start-ups enter according to its development stage and adoption of a demand-driven approach afterwards
Providing community building opportunities	Organizing networking events, and co-working space. Insights from the start-up interviewed was that this moments should happen more often as co-working is not that used and sense of community is weak.	Co-working space and physical facilities: lunch organized by start-ups every Friday. As part of the mentoring program, challenges are given to the start-ups and they discuss it and solve them together. Networking events or meet ups in the end of the day are also organized. For the interviewed start-up, activities happening onsite are the best way to build the sense of community	Organizing private events with founders. Interviewed start-ups are also not engaging that much on these events and sense of community is also not that strong
Enabling knowledge transfers	Knowledge transfer through the community is harder to see as the	Through the community this is particularly visible in the co-	It is harder to learn from the community itself because it is a

	<p>sense of community among start-ups is not that strong.</p> <p>Knowledge transfer through connections with partners is visible</p> <p>IPN and other partner associations</p>	<p>working space. For Beneficio the contact with the community gave them the opportunity to go digital.</p> <p>Using online communication channels not only to connect start-ups but also to share information on new external mentors available to help.</p>	<p>concept hard to build inside the business incubator. However, this transfer also happens with mentorship and knowledge provided by the BUL team, which is also a start-up studio, and external mentors.</p>
<p>Matchmaking with stakeholders</p>	<p>Through connection with investment funds, with “mother incubator” IPN, and its start-ups at IPN, and other partner associations and public entities</p>	<p>Connection with VC’s and partners worldwide and connecting with partners through the BIs network and acceleration programs</p>	<p>As a younger BI, this process is also harder but connections with universities is making the own BI network grow.</p>
<p>Promoting conferences and green initiatives</p>	<p>Participation in green events (Circular Economy for enterprises). Inviting incubated start-ups to give their testimonial</p>	<p>Think Green, Green Week</p> <p>Promoting sustainable and circular business models through the communication channels</p>	<p>-</p>

The author

6 DISCUSSION

This chapter aims to compare the findings of my research with the conclusions I got from the literature review chapter, also presenting a table summarizing my findings (Table 10 – Findings Table). To explain how incubators are supporting environmental impact start-ups, my study focused on understanding the services and resources that incubators have available for these start-ups and on how environmental impact start-ups are evaluating and perceiving it.

Prior studies stretched that one reason why start-ups are not taking full advantage of a BI's resources is because they are unable to recognize their resource needs (van Weele et al., 2017). One way to fight this is by adopting a stronger intervention when the start-up is at an early stage of development. I confirm these findings because I identified practices adopted by business incubators such as structured mentoring programs and incubation plans in the beginning of the period of incubation, adopting a demand-driven approach as the start-ups develop further.

Additionally, previous research showed that community building increases chances that incubated start-ups form ties but also to learn from each other (van Rijnsoever, 2022). Moreover, the author found that a shared infrastructure has no big impact on network formation process. My results show the opposite: virtual incubation is turning community building process harder, as start-ups are using less co-working spaces. However, by being inside the business incubator's ecosystem, start-ups can get in touch with the latest innovations which, on my research, represented an opportunity to learn and expand the business model.

By being virtually or physically incubated, start-ups can benefit from knowledge spillovers (Cantù, 2017). This information is also confirmed by findings: environmental impact start-ups benefit from being incubated also by having access to knowledge through the BI's network or other incubated start-ups which, in the end, can lead to more entrepreneurial or funding opportunities.

My finding show also that business incubators are not supporting environmental impact start-ups any differently, nor using specific frameworks to support impact start-ups as (Olteanu & Fichter, 2022) suggested it would be needed. In fact, when speaking with the executive director from HIESE, he justified:

“No, we are not any specific tool and for a very simple reason. It is very natural for us to speak English as we recognize that business models must be sustainable and therefore, what we always put in place, we always use Canva tools, design thinking and when we think about what an innovative value proposition must be, a value proposition that must be aligned with sustainability principles” (Interview of Joaquim Macedo de Sousa, the executive director of HIESE)

Start-ups have divided opinions on this matter. In fact, depending on the development stage, the type of support provided has different importance for them. On support regarding sustainability, Emiliano from Raiz mentioned:

“In terms of business model, it has to come to the equation, how we process our resources; how do we educate the people and have an impact into their daily lives and the resources we are saving. Nevertheless, sometimes it’s hard to integrate those key topics in the business model itself (...) Having an impact person, strictly there, using specific frameworks, apply and achieve certain criteria to for example access to funding, etc with the climate tech industry that is now rising. That would be cool.” (Interview of Emiliano Gutierrez, co-founder and CEO of Raiz Vertical Farms)

7 CONCLUSION

The purpose of this study was to fill the research gap both on the business incubation field and on environmental impact start-ups by answering the following research question: “How are business incubators supporting environmental impact start-ups and how start-ups perceiving this support?”.

In conclusion, the results of this dissertation show that BIs are supporting environmental impact start-ups through different strategies: giving the possibility of virtual incubation; providing infrastructures and co-working spaces; giving customized support and advice to start-ups; promoting community building opportunities; enabling transfer of knowledges either through the built community or by introducing start-ups to mentors or institutions; matchmaking with stakeholders, such as potential investors or clients; and by promoting conferences and sustainable initiatives. Noting that this support strategies are the same for every kind of start-up Moreover, as virtual incubation becomes more established, ESOs can provide its incubated start-ups a wider range of mentors, investors, and partners. Nevertheless, there are challenges for this incubation model since it is harder for start-ups to make connections with the community, which can be both a source of knowledge and entrepreneurial opportunities. Ultimately, as virtual incubation and remote work are becoming more popular some strategies are harder to put in practice as start-ups are not taking full advantage of it.

This study as several limitations. My sample size was limited and although I was able to interview business incubators and incubated start-ups, it would have been interesting to attend meetings, mentoring sessions, spent more time with start-ups and inside the business incubator ecosystems. Another limitation of my dissertation is the fact that it does not include an impact business incubator. This would have bene particularly interesting since these business incubators might have better ideation on how to build a sustainable business model and match start-ups with key partners on this area. It is also difficult to measure the business support effectiveness because the comparison done, considered start-ups at different stages of development, where managerial and entrepreneurial level of experience of start-up members was also different. These limitations are also path for future research. Focusing on impact business incubators or studying more closely sustainable business models’ start-ups on their daily challenges would be interesting to understand what type of support is more valuable for them. Additionally, a great topic to be explored is the interactions between non-impact and impact start-ups inside a business incubator.

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9 APPENDICES

Table 1 - Primary Data of HIESE

Type of data	Name	Organization	Position in the organization	Data of the interview	Length of the interview
Interview 1	César Henriques	EcoX	Founder & Manager	25 th October	31 min
Interview 2	Salomé Dias	HIESE	Project Manager	11 th November	30 min
Interview 3	Joaquim Sousa	HIESE	CEO	14 th November	25 min
Interview 4	César Henriques & Guilherme	EcoX	Founder & Business Developer	28 th November	27 min

The author

Table 2 - Primary Data of Startup Lisboa

Type of data	Name	Organization	Position in the organization	Date of the interview	Length of the interview
Observation		Startup Lisbpa			45 min
Interview 5	João Nuno Rosado	Startup Lisboa	Investment and mentorship manager	28 th November	31 min
Interview 10	Paulo Fernandes	O Beneficio	Co-founder	13 th December	26 min

The author

Table 3 – Primary Data of Build Up Labs

Type of data	Name	Organization	Position in the organization	Date of the interview	Length of the interview
Interview 6	Raquel Santos	Build Up Labs	Startup Happiness Officer	15 th November	30 min
Observation		Build Up Labs		15 th November	45 min
Interview 7	Raquel Santos	Build Up Labs	Startup Happiness Officer	21 st November	25 min
Interview 8	Emiliano Gutiérrez	Raiz Vertical Farms	Co-Founder & CEO	22 nd November	20 min
Interview 9	Carolina Zurzica	Go Bananas		30 th November	

The Author

Table 4 – Secondary Data of HIESE

Type of data	Title of the document	Name of author	Name of the Organization	Date of publication
Blog post	"Final do Newton 4.0: Conheça os vencedores"	Victor Melo	Turismo Centro de Portugal	31 st May of 2021
Newspaper article	Seminário "Economia Circular: das estratégias nacionais e regionais ao empreendedorismo local"	-	Instituto Pedro Nunes	1st June of 2021
Website	HIESE https://www.smartrural.pt/		HIESE	

	Webpages: “Incubator”, “Incubation formats”; “Premises”			
Website	IPN https://www.ipn.pt/ Webpages: “IPN“, “Incubator”, “Training”		Instituto Pedro Nunes	
Online Newspaper Article	“Penela quer chamar empreendedores para o mundo rural” https://www.publico.pt/2017/03/29/local/noticia/penela-quer-chamar-empreendedores-para-o-mundo-rural-1766853	Camila Soldado	Público	29 th March 2017
Online Newspaper Article	“Usar óleo de fritar para limpar? Há empresas a germinar no interior com ideias fora da caixa” https://www.publico.pt/2017/09/20/local/noticia/usar-oleo-de-fritar-para-limpar-ha-empresas-a-germinar-no-interior-com-ideias-fora-da-caixa-1786015	Camila Soldado	Público	20 th September 2017
Online Newspaper Article	“HIESE: espaço para atrair pessoas e empresas distintas” https://www.diariocoimbra.pt/noticia/72826		Diário de Coimbra	29 th July 2021
Online Newspaper Article	“Empreendedorismo rural “ganha asas” no HIESE em Penela” https://www.diariocoimbra.pt/noticia/24067		Diário de Coimbra	21 st September 2017

Online Newspaper Article	<p>“Projecto Smart Rural, Smart Hiese na incubadora do “laboratório de ideias”</p> <p>https://www.diariocoimbra.pt/noticia/17375</p>		Diário de Coimbra	29 th March 2017
Online Newspaper Article	<p>“Doze empresas com negócios de base rural incubadas em Penela no início de 2018”</p> <p>https://www.dn.pt/lusa/doze-empresas-com-negocios-de-base-rural-incubadas-em-penela-no-inicio-de-2018-8833783.html</p>		Diário de Notícias	11 th October 2017
Online Newspaper Article	<p>“Instituto Pedro Nunes (IPN) - A incubadora empreendedora”</p> <p>https://www.dn.pt/dinheiro/instituto-pedro-nunes-ipn---a-incubadora-empreendedora-15280177.html</p>	Paulo Santos	Diário de Notícias	24 th October 2022
Online Newspaper Article	<p>“Projeto que aposta na valorização do lagostim vermelho vence concurso em Penela”</p> <p>https://www.dn.pt/lusa/projeto-que-aposta-na-valorizacao-do-lagostim-vermelho-vence-concurso-em-penela-9305605.html</p>	Lusa	Diário de Notícias	3 rd May 2018
Online Newspaper Article	<p>“Startup de Coimbra cria detergente com óleo alimentar usado”</p> <p>https://www.publico.pt/2018/07/23/p3/noticia/projeto-para-criar-detergente-com-oleo-alimentar-</p>	P3/Lusa	Público	23 rd July 2018

	usado-apoiado-com-700-mil-euros-1838818			
Online Newspaper Article	<p>“Tecnológicas de Coimbra viraram atenções para a pandemia e começam a apresentar soluções para combater a covid-19”</p> <p>https://www.publico.pt/2021/02/28/sociedade/noticia/tecnologicas-coimbra-viraram-atencoes-pandemia-comecam-apresentar-solucoes-combater-covid19-1952474</p>	Lusa	Público	28 th February 2021
Instagram page	HIESE @smarttural_hiese		HIESE	
Instagram page	Instituto Pedro Nunes @institutopedronunes		IPN	
Instagram page	EcoX @ecox.pt		EcoX	

The author

Table 5 – Secondary Data of Startup Lisboa

Type of data	Title of the document	Name of author	Name of the Organization	Date of publication
Newsletter Article	Deep dive #1/ The Sustainability issue		Startup Lisboa	24 th March 2021
Newsletter Article	Can we do it?		Startup Lisboa	23 rd March 2021

Newsletter Article	10 Tips to strengthen your business' sustainability strategy	Ana Raquel Abreu	Startup Lisboa	24 th March 2022
Online Newspaper Article	Os negócios caminham para um futuro social e ambientalmente sustentáveis? Junte-se à conversa		Mensagem	24 th March 2022
Newsletter Article	Think Green with Trash4Goods		Startup Lisboa	21 st April 2022
Online Newspaper Article	“Fábrica de unicórnios está em marcha, mas o que significa isso para Lisboa?” https://www.publico.pt/2022/07/02/impar/noticia/raiz-propoe- hortas-verticais-cidades- autonomas-sustentaveis- 2012166	Rita Robalo Rosa	Expresso	2 nd November 2022
Online Newspaper Article	“Startup Lisboa apoiou 400 negócios em 10 anos. E ajudou a captar 340 milhões de euros” https://expresso.pt/economia/2022-02-02-startup-lisboa- apoiou-400-negocios-em-10- anos.-e-ajudou-a-captar-340- milhoes-de-euros		Expresso	2 nd February 2022
Online Newspaper Article	“Há mais de 48 mil casas vazias em Lisboa e as tuas ideias podem ajudar a ocupá-las” https://www.publico.pt/2022/05/13/p3/noticia/ha-48-mil- casas-vazias-lisboa-ideias-	Fernando Costa	Público	13 th May 2022

	podem-ajudar-ocupalas-2005995			
Online Newspaper Article	<p>“Startup Lisboa tem 30 mil euros para empreendedores da restauração”</p> <p>https://www.publico.pt/2019/07/23/p3/noticia/startup-lisboa-tem-30-mil-euros-para-empreendedores-da-restauracao-1880789</p>	Maria João Mesquita	Público	23 rd July 2019
Online Newspaper Article	<p>“Startup Lisboa permitiu criar mais de 1500 postos de trabalho em cinco anos”</p> <p>https://www.publico.pt/2017/01/28/tecnologia/noticia/startup-lisboa-permitiu-criar-mais-de-1500-postos-de-trabalho-em-cinco-anos-1759982</p>	Lusa	Público	28 th January 2017
Instagram page	O Benefício @obeneficio			

The author

Table 6 – Secondary Data of Build Up Labs

Type of data	Title of the document	Name of author	Name of the Organization	Date of publication
Website	Build Up Labs https://builduplabs.com/		Build Up Labs	

	Webpages: “Incubator”, “Our mission”			
Website	Go Bananas https://www.gobananaslx.com/		Go Bananas.lx	
Website	Raíz Vertical Farms https://www.raiz.farm/		Raiz Vertical Farms	
Internal document	Template Incubation plan	Build Up Labs		
Online Newspaper Article	“A Kiss MY Score é portuguesa, joga nas apostas desportivas sem dinheiro e foi premiada na Alemanha” https://expresso.pt/economia/2019-04-10-A-Kiss-MY-Score-e--portuguesa-joga--nas-apostas-desportivas-sem-dinheiro-e-foi-premiada-na-Alemanha	Margarida Cardoso	Expresso	10 th April 2019
Online Newspaper Article	“Raiz propõe hortas verticais para ter cidades mais autónomas e sustentáveis” https://www.publico.pt/2022/07/02/impar/noticia/raiz-propoe-hortas-verticais-cidades-autonomas-sustentaveis-2012166	Gonçalo Sampaio	Público	2 nd July 2022
Instagram page	GoBananas @gobananas.lx		GoBananas	
Instagram page	Raiz @raizverticalfarm		Raiz Vertical Farm	

The author

Table 7 – Characteristics of studied business incubators

	HIESE	Startup Lisboa	Build Up Labs
Place	Penela, Coimbra	Lisbon	Lisbon
Nr of employees	4	12	7
Age (years)	6	10	2
Background	Born from the from the partnership between Instituto Pedro Nunes business incubator, and the Municipality of Penela.	Born of the will of the citizens, having been one of the most voted ideas in 2009/2010 Participatory Budget of the City Council.	As a start-up studio, BUL founded their BI to inspire help other entrepreneurs not making the same mistakes they did and do
Industry Focus	Agribusiness; forestry; clean energy; environment, circular economy, and bioeconomy; tourism products and services; and information and communications technology	No specific focus	No specific focus
ES provided	Assistance in legal, accounting, financing, and investment topics; offers acceleration programs; consulting, training and mentoring programs.	Mentoring program, matchmaking process, partnerships, VCs, and access to the community. Co-working spaces or private offices are additional services	Advisory and guidance; support network with investors, mentors, corporates, and tech experts; easier access to software's, platforms, or service providers; and a co-working space.

Incubation duration	Maximum physical incubation is 60 months. Virtual incubation has a period of 3 months but can be renewed.	Maximum incubation is five years. Using the co-working space and physical facilities has a maximum of three years.	No limit established
Nr of incubated start-ups	48	122	55

The author

Table 8 - Data Structure

First Order Codes	Conceptual Categories
International support	Giving possibility virtual incubation
Time saving	
Cost saving	
Access to wider network, mentors	
Collaborative spirit	Providing infrastructures and co-working spaces
Knowledge transfer enabler	
Facilitate meetings	
Structured mentoring program	Providing customized support and advice
Proximity	
“Founders first” approach	
Individual incubation plan	
Demand driven support	
Strong intervention	
Structured Workshops	
Networking events	Providing community building opportunities
Co-working space use	
Physical incubation	
Online communication channels	

Connecting start-ups with each other	Enabling knowledge transfers
Introducing mentors	
Connecting start-ups with BI partners'	
Communication channels	
VC's and investors	Matchmaking with stakeholder
NGOs	
Acceleration Programs	
Partners	
Customers	
Promoting sustainable business models	Promoting conferences and sustainable initiatives
Organizing 'green' events	
Inviting incubated start-ups on events	

The author

Table 9 – Coding Table

Conceptual Categories	Interviews' Quotations
Giving possibility of virtual incubation	<p><i>“We went through a pandemic and habits slowly changed. This is, the adoption of remote working is becoming more and more present (...) We adapt ourselves and now, start-ups are adopting this reality, that is what we see”</i> (Interview of Salomé Dias, project manager at HIESE)</p> <p><i>“The incubation is not something physical vs virtual. Incubation exists in what our product roots are, which can be anywhere in the world, you can access this. This means: mentoring, matchmaking, (...) these are thing you have access no matter what”</i> (Interview of João Nunes Rosado, investment and mentorship managers at Startup Lisboa)</p> <p><i>“We began as an incubator during COVID, everything was done remotely (...) We are supporting many start-ups that are not in Portugal, almost none</i></p>

	<p><i>of them is 100% Portuguese.” (Interview of Raquel Santos, startup happiness officer at Build Up Labs)</i></p>
<p>Providing infrastructures and co-working spaces</p>	<p><i>“Right now, it's just a one-off office for meetings, because effectively our work is either at the production unit or clearly at home.” (Interview of César Henriques, CEO at EcoX)</i></p> <p><i>“We do a lot of remote working. Also, I live in Ericieira, two are based Carcavelos, another is now in Argentina. Remote work or at Nova SBE, which is our meeting point.” (Interview of Carolina Zurzica, CMO at GoBananas)</i></p>
<p>Providing customized support and advice</p>	<p><i>“At the time of +CO3SO, a program financed by ESF in line with Portugal 2020, we made six applications and they had to be very much in this logic of sustainable development. All of them got top marks for having sustainable practices” (Interview of Salomé Dias, project manager at HIESE)</i></p> <p><i>“The +CO3SO is a good example of something they did and worked hard to help us (...) Our first application was not accepted, and there was work complaining the entities that carried this, to understand the evaluation criteria withing the legal parameters, this classification was reversed because of that.” (Interview of César Henriques, CEO at EcoX)</i></p> <p><i>“Our work, with people, with entrepreneurs, is a work of proximity and needs a lot of contact, a lot of meetings, moments of joint reflection. They ask for help from the simplest things to the most complex things.” (Interview of Joaquim Macedo de Sousa, the executive director of HIESE)</i></p> <p><i>“The fact that they are in a rural area, there are not so many companies, and they obviously must seize the opportunities. They have to work and be close to companies (...) you end up creating relationships there, many closer connections and greater effectiveness” (Interview of César Henriques, CEO at EcoX)</i></p>

	<p><i>“Every week on Fridays, we have several topics for example, sales, fundraising, pitching, design, product and engineering, cloud. For 12 weeks, there are two hours of training with speakers from partners we have, VCs who come separately. This is all done remotely”</i> (Interview of João Nunes Rosado, investment and mentorship manager at Startup Lisboa)</p> <p><i>“The program we created was exactly to be very close to startups and we are very customizable. We are very attentive to the profile of the founder himself. So we changed our own logo, nowadays it’s much more in the “Founder’s first” perspective and it’s one of the great flag mottos. “Founder’s first” and “Give First””</i> (Interview of João Nunes Rosado, investment and mentorship manager at Startup Lisboa)</p> <p><i>“A big advantage of being at Startup Lisboa is being able to discuss with other your point of view, your business model. That’s it. Being able to share and have validation and other different inputs than two people can do”</i> (Interview of Paulo Fernandes, co-founder of Benefício)</p> <p><i>“From this moment, we have no schedule or structured program. But it is as we go. We have a community on Slack, where we share our availability and whenever they have a question or want our opinion, we give them feedback. And it goes like this”</i> (Interview of Raquel Santos, startup happiness officer at Build Up Labs)</p> <p><i>“As entrepreneurs we don’t know much, we are in the learning phase (...) they have the patience and the ability to listen to us but at the same time they also know how to reason with us and say maybe that’s not the question you’re looking for but let’s try to find what that’s the problem.”</i> (Interview of Carolina Zurzica, CMO at GoBananas)</p>
	<p><i>“We organize networking events, so entrepreneurs can share with each other some of their struggles, because sometimes problems are the same for startups and with these opportunities, they are also able to advise each other. And</i></p>

<p>Providing community building initiatives</p>	<p><i>this is very important.” (Interview to Salomé Dias, project manager at HIESE)</i></p> <p><i>“Every Friday, we have here a lunch organized by one of our incubated start-ups, that invites all other to join. This is a moment of sharing and we, as Startup Lisboa, also organize plenty of events for our founders” (Interview of João Nunes Rosado, investment and mentorship managers at Startup Lisboa)</i></p> <p><i>“Being physically incubated makes it easier to have access to the community. With e-mails or through Slack... it’s good but it is different. If you gathered few people in the end of the day to go and eat pizza or drink something, the community is different. We are speaking, some of them make a presentation, others a pitch, it goes like that” (Interview of Paulo Fernandes, co-founder of Beneficio)</i></p> <p><i>“We are a small and recent team but since I came, we focus a lot in private events with our founders so they get the chance to meet, connect and exchange ideas” (Interview of Raquel Santos, startup happiness officer at Build Up Labs)</i></p> <p><i>“I know the community exists and it is there, but we don’t interact that much with other start-ups. Three of us are writting the master’s thesis, two of us are working and we are not having the time to go to the co-working space and interact.” (Interview of Carolina Zurzica, CMO at GoBananas)</i></p>
<p>Enabling knowledge transfers</p>	<p><i>“The most important thing of anything related with start-ups is the community, more than mentoring, more than access to capital, it’s the community. Because, you see, this unlocks many things (...) and we see this happen very organically, startups end up talking to each other a lot in their own rooms, in their own co-work.” (Interview of João Nunes Rosado, investment and mentorship managers at Startup Lisboa)</i></p> <p><i>“Based on my experiences as an entrepreneur within a mobility tech area, I can introduce you here to mobility tech startups, or my mentors, or my</i></p>

investors. (...) In the community there turn out to be many things that are spontaneous and on-the-go. However, everything that is networking, ends up generating community and being digital, that also exists.” (Interview of João Nunes Rosado, investment and mentorship managers at Startup Lisboa)

“One of our benefits is, we are HIESE, but our motherhouse is IPN. When we cannot find an answer, we ask them. This network is also very important to fulfill some need we might have.” (Interview to Salomé Dias, project manager at HIESE)

“Our network, the laboratories we have at IPN, for example, LEDMAT that works a lot on sustainability issues and even circular economy” (Interview of Joaquim Macedo de Sousa, the executive director of HIESE)

“The connect HIESE and IPN is very important. They help on project management, IPN has a laboratory, and we collaborate together with services or applications to projects their also involved” (Interview of César Henriques, CEO at EcoX)

“We have what’s called ‘mentor madness’. You join Startup Lisboa and we try to introduce you to a group of eight to ten mentors, who you end up getting to know during that first month (...) Weekly, we share with our start-ups who are the new mentors available and make that introduction” (Interview of João Nunes Rosado, investment and mentorship managers at Startup Lisboa)

“Sometimes we think we don’t have the network, but supporting these start-ups is pushing us to get that network. And, honestly, the connection with universities has been very good and important on that matter.” (Interview of Raquel Santos, startup happiness officer at Build Up Labs)

“Because you can feel start-up’s rotativity, we see a big transformation in the type of company that is there. Previously there were many companies built for people (related with talent, human resources, things like that), nowadays, it is totally different with the digital world and Web3, and less Portuguese companies. We are very experimentalists, and we like very much to learn from

	<p><i>others and that makes us grow as well” (Interview of Paulo Fernandes, co-founder of Beneficio)</i></p>
<p>Matchmaking with stakeholders</p>	<p><i>“We have a relationship with investment funds that are very close with sustainable businesses and renewable energy, for example” (Interview of Joaquim Macedo de Sousa, the executive director of HIESE)</i></p> <p><i>“When we were looking for investments, they put us in touch with a few. That’s the job. In fact, they’re worried with their start-ups, not only waiting for the monthly fee, but to find the right options for us.” (Interview of César Henriques, CEO at EcoX)</i></p> <p><i>“What we have is a network of 98-99 VCs with whom we work, from all over the world. Some that are more impact, others that are more mobility, others that are more agriculture, food tech, etc. That ends up also sometimes supporting these types of start-ups.” (Interview of João Nunes Rosado, investment and mentorship manager at Startup Lisboa)</i></p> <p><i>“As around sustainability there is much more access to grants, we make the introduction to a partner, which is specialist on everything that has to do with European grants and can advise better on which to apply for. Their business is to write and help with the application process, but it is not mandatory for the start-up up to do it with them” (Interview of Raquel Santos, startup happiness officer at Build Up Labs)</i></p> <p><i>“We have a business association called ‘Associação da Bioenergia Avançada” and this entity creates a powerful network around sustainability, and in the case of energy transition on the transport matter, linked to advanced biofuels” (Interview of Joaquim Macedo de Sousa, the executive director of HIESE)</i></p> <p><i>“We have here an enterprise in the transportation and logistics industry, what we did was the match between then and this biofuels association. We thought it would be interesting to bring them together to understand how they could</i></p>

	<p><i>compensate for the emissions. Sometimes we are the one able to build these synergies.” (Interview to Salomé Dias, project manager at HIESE)</i></p> <p><i>“We have a good network, but I don’t think it is sufficient (...). In what we can help is on how to make the start-ups business models financially sustainable, thinking about impact, but focusing more on building a strategy and roadmap and less in the specific product” (Interview of Raquel Santos, startup happiness officer at Build Up Labs)</i></p>
<p>Promoting conferences and sustainable initiatives</p>	<p><i>“We also had Think Green, which aimed at promoting sustainable and green businesses, within Startup Lisboa and with a sustainable footprint(...)what we're going to do to do now is to launch a Green Tech program, a program to accelerate companies that are in the clean tech area and that, yes, is very connected with Hub Creativo do Beato, and that's where we're going to have this bet for the part of everything green” (Interview of João Nunes Rosado, investment and mentorship manager at Startup Lisboa)</i></p>

The author

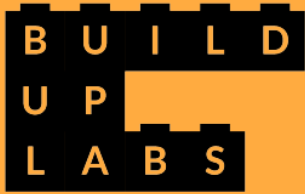
Table 10 – Findings Table

Support strategies	HIESE	Startup Lisboa	Build Up Labs
<p>Giving possibility of virtual incubation</p>	<p>Virtual incubation lasts for three months and its up to renewal at the will of both parties. Used as a pre-physical incubation strategy</p>	<p>Incubation is solely virtual and can last a maximum of 5 years</p>	<p>Only virtual incubation and maximum incubation period is not defined.</p>
<p>Providing infrastructures and co-working spaces</p>	<p>Access to private-office and co-working space when physically incubated. Start-ups can choose whether they</p>	<p>Co-working space or private office is an extra level of service on incubation model and has been a great enabler</p>	<p>Start-ups can use the co-working space and extra-incubation, they can rent an office/table</p>

	want to use a private office or the co-working space	of community building and knowledge transfer	
Providing customized support and advice	Relational proximity between incubator's managers and start-up founders'	"Founder's first" perspective with a structured mentoring program when start-ups enter	Design of the incubation plan when start-ups enter according to its development stage and adoption of a demand-driven approach afterwards
Providing community building opportunities	Organizing networking events, and co-working space. Insights from the start-up interviewed was that this moments should happen more often as co-working is not that used and sense of community is weak.	Co-working space and physical facilities: lunch organized by start-ups every Friday. As part of the mentoring program, challenges are given to the start-ups and they discuss it and solve them together. Networking events or meet ups in the end of the day are also organized. For the interviewed start-up, activities happening onsite are the best way to build the sense of community	Organizing private events with founders. Interviewed start-ups are also not engaging that much on these events and sense of community is also not that strong
Enabling knowledge transfers	Knowledge transfer through the community is harder to see as the	Through the community this is particularly visible in the co-	It is harder to learn from the community itself because it is a

	<p>sense of community among start-ups is not that strong.</p> <p>Knowledge transfer through connections with partners is visible</p> <p>IPN and other partner associations</p>	<p>working space. For Beneficio the contact with the community gave them the opportunity to go digital.</p> <p>Using online communication channels not only to connect start-ups but also to share information on new external mentors available to help.</p>	<p>concept hard to build inside the business incubator. However, this transfer also happens with mentorship and knowledge provided by the BUL team, which is also a start-up studio, and external mentors.</p>
<p>Matchmaking with stakeholders</p>	<p>Through connection with investment funds, with “mother incubator” IPN, and its start-ups at IPN, and other partner associations and public entities</p>	<p>Connection with VC’s and partners worldwide and connecting with partners through the BIs network and acceleration programs</p>	<p>As a younger BI, this process is also harder but connections with universities is making the own BI network grow.</p>
<p>Promoting conferences and green initiatives</p>	<p>Participation in green events (Circular Economy for enterprises). Inviting incubated start-ups to give their testimonial</p>	<p>Think Green, Green Week</p> <p>Promoting sustainable and circular business models through the communication channels</p>	<p>-</p>

The author

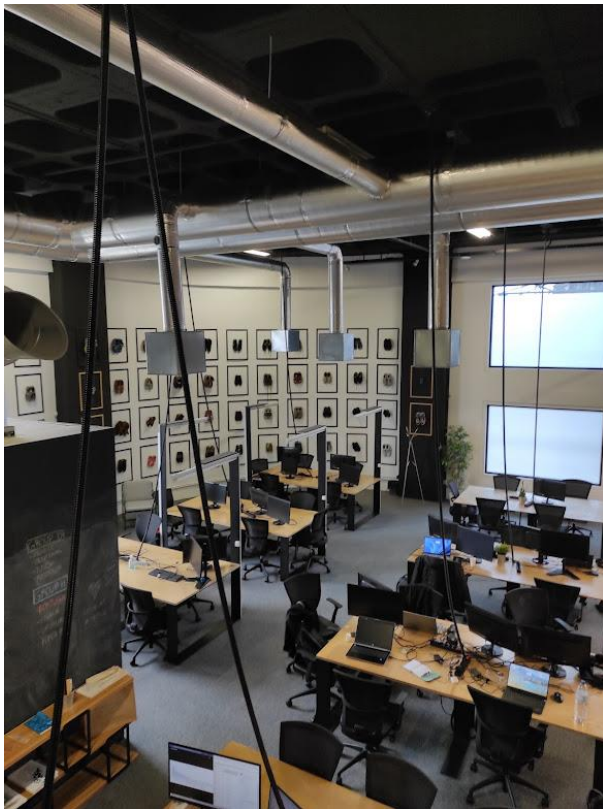


Startup Name Incubation Plan

Start date: dd/mm/yyyy

Appendix 11: Incubation plan presentation

Source: BI's file



Appendix 12: Build Up Labs facilities

Source: The Author



Regulation of HIESE – Habitat de Inovação Empresarial nos Setores Estratégicos

Preamble

The overall objective of the Habitat de Inovação Empresarial nos Sectores Estratégicos, hereafter referred to as HIESE, is to contribute to Penela's affirmation as an innovative, creative and entrepreneurial territory, allowing:

- a) attract and fix a population with high levels of qualification, creativity and entrepreneurship in the municipality;
- b) increase the qualification, creativity and entrepreneurship levels of the resident population and contribute to their establishment in the municipality;
- c) endow entrepreneurs and companies with the tools and essential conditions for their development and growth.

HIESE is, at this stage, a core of support for entrepreneurship in the strategic sectors, especially in the early stages of the companies' life cycle.

HIESE's mission is to offer conditions of excellence in the base support to companies in the strategic sectors in order to enhance their capacity of innovation, growth and competitiveness.

This mission is accomplished through the use of resources and best practices at national and international level, generating a scale effect which makes it available to the installed companies.

This regulation defines the operating structure of HIESE, being applicable, with the necessary adaptations, to all entities that use the facilities, whether they are partners, employees, suppliers, customers or visitors of the hosted companies.

Appendix 14: Regulation of HIESE

Source: BI's file



Appendix 15: Startup Lisboa facilities

Source: The Author