



Assessing the Impact of Sustainable Start-up Support Programs: the case of Innofest

Sustainable Entrepreneurship Project

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Abstract

This study, using a case study approach, presents one of the most innovative start-up support programs in the Netherlands: Innofest. From the perspective of the program, I analyse how start-up support programs contribute to the sustainable performance of sustainable start-ups. To do so, I developed a framework which analyses how the different activities of start-up support programs influence the performance of start-ups and contribute to their impacts. With my findings I add to literature about start-up support program performance measurement and provide practitioners a tool useful to improve the influence they have on start-ups impact.

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INTRODUCTION

According to the European Commission (2020), the transition towards a more environmentally and socially sustainable economy is a major priority. Fundamental players to foster this transition are sustainability-oriented start-ups, small, innovative businesses characterised by a sustainable business model (SBM) (Bergmann & Uitkal, 2021). Being small businesses, sustainable start-ups often struggle to emerge in the entrepreneurial ecosystem and therefore require the assistance of intermediaries that help them transform their innovative ideas into viable businesses (Tasic, Montoro-Sánchez, & Cano, 2015). These intermediaries are start-up support programs, which play a crucial role in the success of these companies. According to a research conducted by the Politecnico of Torino (2020), in Europe there are about 1,217 start-up support programs, but little is known about how they can contribute to sustainable entrepreneurship (Bergmann & Uitkal, 2021). Due to the growing relevance of sustainable development, always more start-up support programs became willing to tackle social and environmental challenges through their activities (Bergmann & Uitkal, 2021). To do so, many started accepting only sustainable start-ups in their programs. However, verifying whether this strategy contributes to increasing the start-ups' social and environmental performance is difficult (Aurmo, 2010). The reason lies in the lack of a method able to measure the extent of the influence the programs have on start-ups' performance. Defining a way to measure this contribution is relevant for two reasons. First, to understand whether the actions are going in the right direction or need to be changed because the impacts on the society and the environment are not necessarily positive, they can also be negative (Bergmann & Uitkal, 2021). Secondly, to show funders and entrepreneurs that their assets are making a difference and do not have to be spent elsewhere (Ebrahim & Rangan, 2014). As these programs often operate

with funding from the government or private investors and represent a significant sacrifice in terms of time for the entrepreneurs (Fonseca & Chiappetta Jabbour, 2012).

In order to fill this gap, a new method to assess incubators performance is needed (Bergmann & Utkal, 2021). The practice of performance measurement consists in assessing the operations of a company. Which means, evaluating whether the strategies in place are effective in achieving the corporate objectives (Muchiri, Pintelon, Gelders, & Martin, 2011). Measuring performance makes it possible to monitor whether resources are adequately allocated, and operations effectively carried out. It allows highlighting potential shortcomings, which can consequently be improved (Niedritis, Niedrite, & Kozmina, 2011). There are several ways of measuring performance depending on the objectives the company wants to achieve. Generally, mainstream commercial enterprises base their performance measurements on profit indicators (Ebrahim & Rangan, 2010). In the case of sustainable enterprises, however, the situation is different. Sustainable enterprises are those companies which, apart from gaining profit, are interested in producing social or environmental benefits for their stakeholders (Ebrahim & Rangan, 2010). Hence the above-mentioned start-up support program can be classified as such. This multiple mission requires a multiple level assessment (i.e., the social and environmental levels besides the economic one), making performance measurement more complex (Hourneaux, Gallardo-Vázquez, & Da Silva Gabriel, 2018). Moreover, societal and environmental-level result are not limited to the organisational boundaries but extend beyond (Stephan, Patterson, Kelly, & Mair, 2016). This makes it difficult to identify and establish the causal relationship with the company's activities (Molecke & Pinkse, 2017).

In order to reduce these difficulties, an analytical tool has been developed, the Theory of Change (TOC). TOC is a simplification of the reality which divides the operation of sustainable enterprises

into different steps (inputs, activities, outputs, outcomes and impacts), allowing to better distinguish between the results closer to the organisational boundaries, which are easier to manage, and those that extend beyond and concern the environment and the society at large. This eases the establishment of a linear relationship between the operations and the company's results. I explained better the different stages included in the TOC in the following sections. At the moment, it is essential dwelling on the distinction between the two kinds of results created by companies' activities. They can be outcomes or impacts. Outcomes refer to the effect the activities of the organisations have on the stakeholders directly connected to the company; hence the lasting changes generated in the target group (Fichter et al., 2021). Whereas impact refers to the lasting effects in the broader system, namely the environment and society as a whole (Ebrahim & Rangan, 2014). A few examples of impacts are the generation of new market segments or the creation of new jobs (Fichter et al., 2021). Given these difficulties, the issue of performance measurement in sustainable enterprises is a debated topic. It does not exist yet an effective method to identify, manage and measure the operations of sustainable enterprises so to improve their sustainable performance (Hourneaux, Gallardo-Vázquez, & Da Silva Gabriel, 2018).

The same is true for sustainable start-up support programs. The existing literature is limited to outcomes measurement, such as success and survival rate of the start-ups (Fichter et al., 2021). The evaluation of these metrics is indisputably critical, but if the intention is to contribute to social and environmental impacts, it is essential to extend the analysis at the level of the impact (Aurmo, 2010).

Therefore, this study aims to answer the question, *“To what extent do Start-up Support Programs influence the sustainable performance of incubated start-ups?”* By answering this question, I aim to expand existing literature regarding the performance measurement practice of

start-up support programs, particularly concerning their contributions to incubator's sustainability. To this purpose, after exploring the literature regarding performance measurement of sustainable start-ups support programs, I developed a framework. It evaluates sustainable start-up support program activities from a triple bottom line perspective and allows to gather information about the influence they have on start-ups' impact. I then applied the framework to a case study to test its validity. The case of study is Innofest, a Dutch sustainable start-up support program. Innofest is based in Leeuwarden and is an innovative player in this field. It is not the usual incubator or accelerator that trains entrepreneurs from a theoretical point of view, rather it allows them to test their assumptions during events, allowing entrepreneurs to be in touch with a small representation of society (Innofest, 2021).

This study is structured as follows. Section 2 presents an overview of the theoretical background. Section 3 includes the case of study and describes the methodological approach as well as the rationale for framework building. Section 4 presents the results acquired which are discussed in section 5. Section 6 includes general conclusions, recommendations and limitations.

THEORY

Performance measurement

The concept of performance measurement refers to monitoring the operations of a business to evaluate if how they are developing is in line with the established goals (Sangwa & Sangwan, 2018). It is implemented through a series of ratios and indicators which constitute different performance measurement frameworks (Muchiri, Pintelon, Gelders, & Martin, 2011), also known as Performance Measurement Systems (PMSs) (Niedritis, Niedrite, & Kozmina, 2011). Hence, performance measurement is the “umbrella term” that defines the evaluative practice of businesses’ operations. Each company has to find the most suitable PMS for its business according to its management model, strategy and, last but not least, measuring interest (Nicholls, 2018). Performance measurement can assist the company in individuating possible gaps between actual and desired outputs but can also provide information on how to better align the strategies to the accomplishment of the goals (Muchiri et al., 2011)

As already mentioned in the introduction, I will refer the term performance measurement to the practice of impact measurement for this paper. The difference lies in the fact that business-as-usual measures performance through profit indicators which means limited to an internal evaluation of the company (Ebrahim & Rangan, 2010). In the case of sustainable enterprises, this one-dimensionality is replaced by a multidimensional perspective. Besides the economic aspect, the social and the environmental point of view, i.e. the impacts, are included (Vanderstraeten & Matthyssesns, 2010). Considering the impact requires looking outside the organisational boundaries and exploring how business activities affect the society and the environment (Stephan et al., 2016). Evaluating impact is thus much more complicated than traditional performance

measurement, as social and environmental ratios are more difficult to quantify because their causal link to the company's activities not always straightforward (Ebrahim & Rangan, 2014).

For these reasons, impact measurement is also a very discussed topic in literature. This type of evaluation is challenging and highly resource-demanding (Ebrahim & Rangan, 2014) and both academics and practitioners are divided on the topic. They debate on whether it should be task of the individual enterprises to measure the consequences their operations have at a community and societal level (Ebrahim & Rangan, 2014). Moreover, there are no agreed methodologies on how to evaluate impacts (Molecke & Pinkse, 2017). Some are of the opinion that companies must be held accountable for the impact that arises from their operations, others, believe that since this impact is also affected by external factors not completely under the company's control, companies should not be held accountable to measure that (Molecke & Pinkse, 2017). On the other hand, the majority agrees on the fact that companies should be concerned about the ripple effect their operations have, especially on society and the environment (Stephan, Patterson, Kelly & Mair, 2016). According to Ebrahim and Rangan (2014), for instance, assessing impact is possible only in two situations: (i) when the causal link between outcomes and impact is clear and (ii) when the organization can control the actions that lead to the impact. The main obstacle is that since the relationship between the activities and the outcome is not clear, measuring impact can be very resource-consuming without leading to relevant results (Ebrahim & Rangan, 2014).

As mentioned in the introduction, to address the difficulties inherent in the impact measurement practice, throughout this paper I will use an analytical tool to better understand performance in the context of sustainable enterprises, the TOC, which I will explain in the following section.

Theory of change

The TOC is an analytical tool that describes the change process inside an organization. In particular, it illustrates how the enterprise's actions lead to the desired change (The Centre for Theory of Change Inc., n.d.). Being a simplification of the reality, I considered the TOC a valuable resource for better understanding the impact in the context of sustainable enterprises. TOC divides the operations of an enterprise into 5 concepts: inputs, activities, outputs, outcomes and impacts.

The *inputs* are the resources invested in the business (Fichter, et al., 2021), namely the human, financial and organisational resources present at the beginning or those needed to initiate the business. Having a snapshot of the inputs required and those at hand is helpful in individuating shortcomings (PCAR, 2018).

Activities refer to the interventions on inputs that the company performs to generate the *outputs*, hence the tangible products or services it creates and delivers (PCAR, 2018)

The *outcomes* are the direct effects of the delivered product or service on the targeted beneficiaries and other stakeholders directly connected with the company's activities (Fichter et al., 2021). In this case, the causal relationship is generally easy to recognise. Outcomes can have a limited duration or have a deeper and more lasting effect on the beneficiaries (PCAR, 2018). For instance, outcomes can change participants' behaviour, knowledge, skills, status, and level of functioning (Fichter, Widrat, & Olteanu, 2021).

Last but not least: *impacts*. The impacts are those long-term positive or negative outcomes that the company's activities have on a broader scale (Ebrahim & Rangan, 2014). Impacts do not influence just the stakeholders directly connected to the company; rather, they affect the broader market, environment and society (Fitcher et al., 2021). As already mentioned, establishing these effects is difficult because the connection they have with the activities performed by the company is not

always straightforward (Molecke & Pinkse, 2017). Moreover, for start-up support programs, this is even more difficult. Incubators' impact does not depend just on their activities but also on the activities of the incubated start-ups because with their operations they also contribute to the impact of the start-ups (Aurmo, 2010). Furthermore, support programs are not the only contributors to the start-ups' impacts, rather several exogenous factors contribute to that (Fonseca & Chiappetta Jabbour, 2012). This creates a chain reaction that makes extremely complicated to recognise among the impacts only those associated to the program operations (Fichter, Widrat, & Olteanu, 2021). Nevertheless, identifying the impacts is essential because they can also be damaging and being aware of them can help avoid them (Molecke & Pinkse, 2017).

Start-up support programs and their performance

The focus of this research are start-up support programs. A start-up support program is a limited-duration program, lasting roughly three to six months, which aims at helping start-ups develop their entrepreneurial process and emerge in the entrepreneurial ecosystem (Cohen, Fehder, Hochberg, & Murra, 2019). There are different kinds of start-up support programs. Usually, they all lay under the umbrella term "incubator"; even if incubators are just a typology among all the programs. Each type of program has different characteristics in terms of organisation and resources offered to entrepreneurs (Vanderstraeten & Matthyssesns, 2010). However, a common feature is the provision of several key assets for the start-ups, for instance, capital, co-working space, networking, educational and mentorship opportunities from program directors, founders of peer ventures and a range of external participants commonly referred to as "mentors" (Cohen et al., 2019). An example of start-up support programs are accelerators. Accelerators are business entities that, thanks to the resources they make available, enable entrepreneurs to speed up the start-up creation process (Tasic, Montoro-Sánchez, & Cano, 2015).

Start-ups, namely “young, innovative and growth-oriented” businesses, play a crucial role in innovation and sustainability (Olteanu & Fichter, 2022). According to a research conducted by Horne & Fichter (2022), new businesses, such as start-ups, are more likely to introduce environmental innovations in the market. Therefore Bergmann & Uitzal (2021) argue that sustainable start-up support programs are fundamental contributors to the industry’s sustainable development. With their operations, they allow these start-ups and their sustainable innovations to go on the market and succeed. In addition, they contribute to the impact start-ups have on society and the environment, but as there are many external factors interfering, the attribution of these impacts is not easy as it looks (Fichter, Widrat, & Olteanu, 2021).

The purpose of this study is to evaluate the extent of the influence that start-up support programs have on the impact of the start-ups they incubate. To do so, the evaluation of this contributions must be included in the performance measurement of the programs.

However, in the existing literature, there is much confusion on how to evaluate the performance of start-up support programs. Scholars stress the importance of assessing different aspects of the operations of the programs, but the frameworks they propose are limited to the measurement of outcomes. According to Allen and McCluskey (1990), for example, start-up support programs should be evaluated according to employment generation, length of incubation period and the survival rate after incubation. Vanderstraeten & Matthyssesns (2010) suggest evaluating the effectiveness of an incubator according to the realisation of the organisation’s objectives which means that the closer the goals are met, the more effective and successful the organisation has to be considered. According to (Schwartz & Göthner) since start-up support programs perform several activities, their performance measure requires a method that includes and evaluate all of

them. On the other hand, however, Vanderstraeten & Matthyssesns (2010) argue that using too many ratios would result in information overload. Performance measurement should instead be limited to the most critical measures.

The literature concerning the social and environmental impacts of start-up support programs is even more scarce. Many authors, such as Lalkaka (2001), evaluate incubators according to “sustainability” but understood as the financial capacity of the programs to sustain themselves. Fonseca & Chiappetta Jabbour (2012) developed a framework to evaluate incubators' green performance, but their focus is mainly on pro-environmental activities performed by the company as an autonomous organisational unit. They do not analyse how and how much the programs contribute to the impact of the participants. Nevertheless, this is one of the first studies that also considers the environment in start-up support programs' performance. Thanks to the framework they developed, they were also able to classify start-up support programs according to their “environmental maturity” level.

Nevertheless, determining the extent of this contribution is essential to increase the influence start-up support programs have on their incubatees' impact. As affirmed by Niedritis, Niedrite & Kozmina (2011) “If you cannot measure it, you cannot control it. If you cannot control it, you cannot manage it. If you cannot manage it, you cannot improve it.” In addition, support programs represent a big investment in terms of money and time (Vanderstraeten & Matthyssesns, 2010). Usually, in fact these programs are publicly funded (Olteanu & Fichter, 2022) and require the participants an important commitment in terms of time. So measuring their performance and impact will also be helpful for funders and participants to see if these investments have the expected return. Therefore, this study aims to explore the role of start-up support programs on sustainable start-ups' impact.

As it was possible to understand from the theory section, the literature is poor in information regarding methods to effectively assess the contributions of incubators to the impact of start-up. For this reason, to answer the research question I decided to develop a new framework by merging the information provided by the existing literature.

METHODOLOGY

The study aims to discover the extent of the influence start-ups support programs have on the impact of sustainable start-ups. To answer the research question, I conducted a study divided into two parts. In the first part, thanks to the information found in the existing literature, I developed a framework to assess the performance of start-up support programs. In the second part, following the case study approach, I applied the framework to the case of Innofest. To do so I conducted interviews with former participants to the program. In this section I included a detailed description of the case of study(3.1), the explanation of the process for building the framework (3.2) and of the process of empirical data collection (3.3).

Innofest

Innofest is a start-up support program founded in 2016 in Leeuwarden, Friesland (NL) to help entrepreneurs test their innovations. Specifically, Innofest partners with different Dutch festivals to provide the entrepreneurs with a testing ground. According to the founders, festivals are an optimal environment to test assumptions because are sort of micro societies. The concept behind the business idea of Innofest is that innovations must be tested “just making assumptions will not get you there” (Innofest, 2021). Besides offering the entrepreneurs the test location, Innofest assists them in getting ready for the testing, providing an actual learning process. This process is called the “Innofest Loop” and consists of 6 steps (Innofest, 2021):

1. *Sign up*: the selection of the start-up.
2. *Expert check*: to be eligible, the start-ups must comply with some characteristics. A specific test question, an innovative prototype and the innovation must have a business case and a

positive impact on the world. The entrepreneurs selected by Innofest must “contribute to a better world, ” meaning that the start-up must have a sustainable business model. Innofest illustrates this through seven categories: health, circularity, energy, food, water technology and well-being of the environment (Innofest, n.d).

3. *Preparation (Innolessons)*: consists of four lessons (three before and one after the test) to prepare the entrepreneurs for the testing and to provide them with strategic information on how best to develop their project.
4. *Test*: is the core of Innofest’s activities. It is the moment when entrepreneurs have the opportunity to put their prototype into practice and receive feedback. Initially, Innofest was testing just during festivals, but after the pandemic, they started also testing in living labs and online. According to Innofest “to test well is to dare to fail” because if you fail you can understand better what to change.
5. *Evaluation*: discussion of test outcomes and plan of the next steps.
6. *Expert check*: the expert check the innovation and gives suggestions on how to proceed. If he considers the innovation ready for the market, the entrepreneurs will leave the Innofest loop. It can also be possible that further tests are needed. In this case, the entrepreneur enters the loop again.

Innofest is a foundation so a not-profit-oriented business that receives funds to operate thanks to subsidies from universities, municipalities and some companies. They use this capital to buy the testing spots during the festivals or in living labs. However, one of their short-term goals is to become a real business hence a financially healthy organisation.

Framework Building

In order to discover the extent of start-up support programs' contribution to the impact of the start-ups, I developed a framework by merging and adapting to my purpose different information found in the existing literature. The adaptation was needed because the majority of the frameworks proposed in the literature are limited to outcomes measurement. In contrast, I need to extend the assessment to the level of impact. The building of my framework is mainly based on the criteria suggested by Fichter et al. (2021). Namely, (i) the collectability and measurability of the required data. (ii) The timeframe in which the data must be collected and (iii) the efforts required to collect them. I found the most helpful insights from Courteau (2010) and Aurmo (2010).

Courteau (2010) developed a framework to understand how start-up incubators contribute to the success of the start-ups, i.e. amount of investments raised, jobs created and sales revenues. The framework builds on the assumption that start-up support programs have as a central task to create value for the start-up they assist, and they do that in three ways:

- a) provide valuable knowledge through mentorship, advice and interaction with other start-ups
- b) give the start-up access to valuable resources and connections (network) and
- c) enhance the legitimacy of the start-up (this is stronger the stronger it is the reputation of the incubator).

The framework highlights four consequential activities where the accomplishment of one is relevant for the creation of the following. I found this framework suitable for my purpose because the activities individuated by Courteau (2010) can easily be connected to the steps of the Innofest Loop or the ones of any other incubator.

Moreover, I integrated the aforementioned tool with the insights gained from the framework developed by Aurmo (2010). Aurmo (2010) aimed to discover if and how six business incubators

in Norway, Denmark and Iceland contribute to the sustainable development of the incubated start-ups. This was the only framework I could find in literature dealing with the concept of sustainability with the meaning of triple bottom line. Therefore, I employed this framework to integrate the sustainability metrics of People, Planet and Profit.

Below you can find a graphical representation of the resulting framework I developed. I kept the same structure of Courteau's (2010) framework by adding the sustainability metrics provided by (Aurmo, 2010). I however substituted the activities included by Courteau's with the ones concerning the Innofest process.

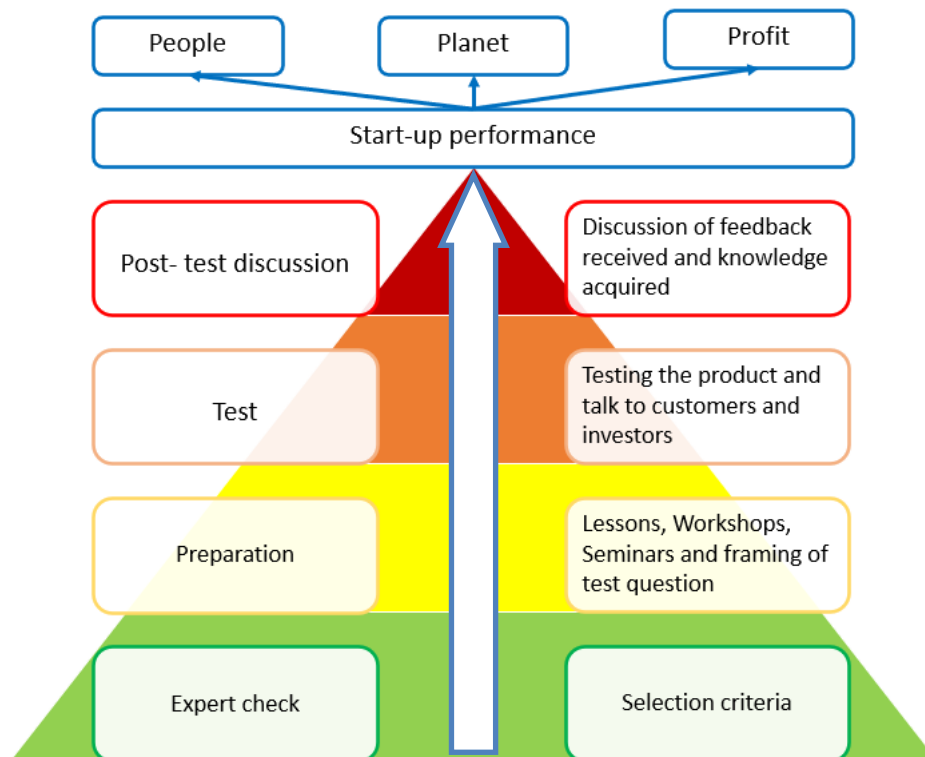


Figure A1: Framework for assessing Innofest's contributions of star-up's impact

In the pyramid, I represented the four main steps of the Innofest Loop and their associated activities. The activities should be evaluated from considering the social, environmental and

economic value provided to the start-ups. The white arrow in the center means that every step is preparatory to achieving the following one. The whole process then contributes to the performance of the start-up. Here, however, the focus is just on the impacts. To do so, during the interviews I asked question such as:

Did Innofest encourage you to develop products/services that are economic, social and environmental sustainable?/ increase your sustainability?

Did Innofest contribute to develop products/services that are economic, social and environmental sustainable?/ increase your sustainability?

Empirical Data Collection

After creating the framework, I applied it to the case of Innofest. This consists of the second part of the study. Because Innofest is a start-up accelerator, its impact is strongly connected to the start-up it helps (Aurmo, 2010). Therefore, to carry out the framework application, I collected primary data from start-ups that have previously worked with Innofest. Specifically, I conducted semi-structured interviews of roughly 45 minutes with the founders. The selection of the entrepreneurs to be interviewed did not follow specific criteria. Consequently, the interviewee population resulted in a collection of different kinds of start-ups that participated in the Innofest program in different years, for different reasons and at different business development stages. The questions asked to the interviewee were mainly aimed at understanding the contribution Innofest had on their economic, social and environmental impacts (See *APPENDIX A* for an overview of the interview guide). The start-up selection was limited because Innofest is no longer in contact with all the entrepreneurs that took part in the program. Because as mentioned by the managers, not all start-ups continue to be reachable after the program.

I recorded and transcribed the interviews with the software *Otter.ai*. Through the transcription, I was able to code the results, for which I used the software *ATLAS.ti*. I analysed the results with an abductive approach, which means according to the information found in literature and integrated with new insights that emerged through the above-described data collection methodologies hence a combination of inductive and deductive approach. I then developed a coding scheme according to the GIOIA method, through which I individuated three aggregated dimensions. These represent the aspects I considered most important to describe the start-ups' experience with Innofest (See *APPENDIX B* for the coding scheme).

RESULTS

This section presents a summary of the data collected thanks to the five interviews I conducted with the founders and CEOs of start-ups that have participated in the Innofest loop in the past. The results are divided according to the 3 aggregate dimensions and one 2nd order dimension, I individuated while coding. To see an overview of the coding scheme I developed following the Gioia method (see *APPENDIX B*).

Although the start-ups are different types of businesses and have participated in the Innofest Loop at different moments in time and for various reasons; the results I obtained are pretty uniform. All the start-ups are based in the Netherlands. The five start-ups interviewed specifically are: Greener - Power Solution, Castodian, Volta Energy, Sjeu and Cuppa.

Greener leases batteries instead of diesel generators to provide events and construction sites with clean energy.

Castodian is an organisation committed to spreading awareness about safe helmets for motorcyclists to reduce the number of deaths caused by head injuries.

Volta Energy provides mobile solar energy locations.

Sjeu is developing a board game with the mission to connect elderly and young people.

Cuppa (which soon will be named Lola) aims to change how food packages are used.

Reasons for joining Innofest

The reasons for participating in the Innofest loop are mainly of 2 types. Some of the entrepreneurs were interested in practically testing the functioning of their innovations and others wanted to hear potential customers' opinion. Greener, for example, was interested in exploring the

potentialities of its batteries “*we could learn what can the battery do and what cannot be done by the battery*”.” In contrast, Volta Energy wanted to understand why event organisers were not interested in their products. Sjeu wanted to see if the game they developed effectively connected more people.

Overaall experience and benefits

All the entrepreneurs affirmed to be highly satisfied with how the Innofest Loop unfolded and with the results they achieved. They all agreed that testing their assumptions during festivals was useful to acquire knowledge fundamental to further business development. During the test events, the entrepreneurs had the opportunity to talk to many people and to put their prototypes into practice. The main recognised benefits include discovering customers' opinions, expanding both the network and the number of customers, and receiving technical feedback on the functioning of the prototypes. Volta Energy, for example, tested its solar power system by powering the performers' entrance to the event. This is the area which requires the least energy across the whole event, and they discovered that: “*our total power supply was too less to break the mainstream of the larger events. So with this information, we thought of a bigger system, we could use on larger scale events*”.

Sjeu discovered that their game was successfully connecting all kinds of people and not just the elderly and young, so they found to have a broader audience than expected. Cuppa had the assumption that customers would be fine with providing an email address and scanning QR codes when purchasing a coffee. But it was not the case for many people who attended the festival. So they had to modify their technology. In addition, they discovered that their name was not suitable for the company (reason why they are rebranding at the moment). “*People were asking if we were only doing cups but we're more than just cups, it is the whole system. We also want to do like*

Pokeboxes and other types of packaging (...). So then the name Cuppa was too describing and not relevant enough. So then we came up with Lola”.

Participating in the Innofest loop also helped the start-ups to connect to contexts that were crucial for their business development but which they would hardly reach on their own.

“Innofest made it possible for us to be present at events that if we would have to do it ourselves it would have been very difficult to arrange. Because what we did at the superbike weekend was a match made in heaven. It's it's 100% match. (...) and if we had to arrange it for ourselves. It would have taken a lot of time and energy”. Castodian

These results show (and it was also mentioned by the interviewees) that Innofest was fundamental in accelerating the feedback gathering process. The entrepreneurs think they could have acquired the same knowledge by themselves but in much more time.

“With the learning from Innofest, we could have the learning that we otherwise would only have in a year or so (...) and maybe even if we had to take this year, we wouldn't be in business anymore” - Volta Energy.

Contributions on the triple bottom line

The additional knowledge acquired mainly helped the start-ups grow in a technical sense and in terms of profit and size (i.e. increase in the number of employees). For instance, the founder of Greener, who took part in the Innofest program in 2018, mentioned *“in 2018, we had around 60,000 euros of revenue, while in 2019 it was about 700,000 euros. They helped us with our first sales”*

On the other hand, the entrepreneurs reported that Innofest did not directly influence the sustainable development of their companies, i.e. social or environmental performance. During the program, the entrepreneurs did not feel that Innofest provided them with additional knowledge

about sustainability. An exception is the founder of Cuppa who reported that Innofest encouraged him to include workers from protected categories in their team. A general belief of the interviewees is that it was unnecessary because they already had a sustainability mission when they joined the program. Nevertheless, the interviewees agree that the additional knowledge acquired throughout the whole program also influenced their societal or environmental impact.

External Contributions

It is essential to point out that some entrepreneurs mentioned that their businesses were also affected by external contributions (both fortuitous events and other incubators). Greener stated that thanks to the pandemic, they were able to find new markets where to operate: *“Because of Corona we found different markets. And those are still there, and the festivals are back”*.

This demonstrates what already found in literature (Molecke & Pinkse, 2017), namely that many external factors contribute to the impact of start-ups, which cannot be entirely attributed to the support programs they joined.

DISCUSSION

Framework Application:

In the following section, the data acquired thanks to the interviews will be applied to the framework presented in *Figure A1*. The purpose is evaluating the extent of the contribution of Innofest on the start-ups sustainable impact.

During the first phase, Innofest applies some barriers to the entry of start-ups. These barriers are of social, environmental, but also economic types. Environmental and social in the sense that the start-ups that apply for the program must contribute to the well-being of the society and the environment. This is a positive start for achieving positive societal and environmental impacts because in doing so, Innofest increases sustainable start-ups's chances of success. Furthermore, only start-ups with an already clear test question are selected because their chance of getting relevant insights is higher. This is in line with Aurmo's (2010) argument that incubators generally have admission criteria, making it more likely that participants will survive and succeed.

The second step, hence the "Innolessons" consists of a series of lessons to help the entrepreneurs formulate and refine the test question so as to ease the feedback acquisition. All the entrepreneurs recognise the remarkable ability of Innofest to formulate the right questions, which is why they all received relevant insights from the testing. However, as emerged from the interviews, this training does not include preparation from the point of view of the social and environmental impact, instead it is more oriented to the technical aspect.

The preparation, however, is fundamental for the effectiveness of the testing itself (the third step). As emerged from the interviews, the more appropriate the test question, the more valuable will be the feedback. From this it follows that, if the test question is geared toward getting feedback

regarding the sustainability of the start-up, the path taken within the program will have a more significant impacts on this area. This, however, depends purely on what the entrepreneurs' want to obtain from the testing. The entrepreneurs I interviewed were interested in understanding the technical functioning of their innovations, rather than the sustainable performance. Nonetheless, the feedback received allowed the start-ups to increase in profit and size, which also implies expanding the reach of their sustainable impacts. In the case of Greener for instance, reaching a wider pool of consumers means increasing the amount of CO2 saved. Also, the fact that the start-up grows and thus hires new employees is positive because it contributes for example to the creation of new jobs. Hence, helping sustainable start-ups succeed also contributes positively to the economic well-being of the area where Innofest operates. This finding is coherent with what Aurmo (2010) argues, hence that startup support programs are “significant infrastructures” for enhancing regional economic development.

The last step of the loop is the post-test discussion. During this phase, Innofest helps the entrepreneurs interpreting the outcomes of the testing and including the feedback in the business model. Also, in this phase, the focus was more on technical aspects and did not concern the sustainability pillars. A part in exceptional cases as it was for Cuppa.

These findings are consistent with the information found in the existing literature, where start-up support programs are considered just indirect contributors to the impact of the start-ups (Aurmo, 2010). In fact, since Innofest did not perform actions directly aimed at increasing the social and environmental performance of the start-ups it is not possible to say that it directly influenced their impacts (Bergmann & Uitkal, 2021). Considering a triple bottom line perspective, the contributions resulting from Innofests' operations are mainly social and economic. While

increasing the success of the startups in fact, the program contributes to the economic development of the area where it operates and to the creation of new jobs. Moreover, the feedback and knowledge acquired by the entrepreneurs throughout the program contributed also to ameliorating the environmental performance of their business. Nevertheless, the influences from the environmental point of view, should be measured through a quantitative method to be more accurate and reliable.

From this we can understand that if the start-up support program wants to play a central role in sustainable development, i.e. by being a direct contributor to the startups' impact, it must actively engage with providing the start-ups with additional sustainability related knowledge. In the case of Innofest for instance this could translate in always including a sustainability component within the test question. In this way, the feedback received during the testing would directly address the sustainable performance of the company and not only the technical and practical aspects.

Another topic to consider are the unintended negative consequences. As argued by Bergmann & Utkal, (2021) sustainable innovation could also cause negative impacts on the environment and the society. The founder of Greener for example, admitted that he has not yet been able to make his product 100% sustainable because the mines where they get the lithium from are subject to child labor. These negative impacts increase with the growth of the start-up. This means that, the incubator becomes an indirect contributor also of them. In this case, providing the entrepreneurs with sustainability knowledge might allow to minimize such negative impacts while increasing the positive contribution of the program.

CONCLUSIONS

This research aimed at discovering the extent of the contributions of start-up support programs on the impact of the incubated start-ups. To do so, I proposed a framework which evaluates the various step of the programs from the point of view of the influence on the triple bottom line. I applied it to the case of Innofest and whether it must be adapted to the characteristics of each incubator, the results I obtained led to some important conclusions.

The case study showed that if, like Innofest, the start-up support program does not perform actions directly aimed at increasing the sustainable performance of the start-up, such as holding specific classes or providing resources fundamental for obtaining better sustainable performance, the extent of the contribution is only superficial, i.e., indirect, and cannot be quantified because there is no possibility of establishing a connection between actions and results.

The findings show that the knowledge and resources provided by start-up support programs always influence (usually positively) the performance and success of the start-ups (Tasic, Montoro-Sánchez, & Cano, 2015). As such, they also affect their sustainable impact. However the “sustainability is mainly preserved by the entrepreneurs themselves” (Aurmo, 2010).

The fact that the extent of the contribution is only at the surface level does not mean that this is not important. On the contrary, as several authors have already pointed out, start-up support programs are fundamental players in the development of the local economy (Bergmann & Uitzal, 2021). The case study has shown that their central role in the success of the start-up contributes to the economic prosperity of the area where they operate. This does not only allows to create new job opportunities, but it also influences the entire entrepreneurial ecosystem by making it more competitive and innovative with a sort of “lighthouse effect” (Tiba, van Rijnsoever, & Hekkert, 2020).

On the other hand, it is essential to underline that we do not necessarily refer to positive results with the term impacts. Sustainable start-ups might also negatively affect the society and the environment (Bergmann & Uitzal, 2021). Nevertheless, start-ups support programs can have a role also in this context. By educating the entrepreneurs, they can contribute to minimize the negative impacts.

Concluding, I can say that startup-support programs indirectly contribute to sustainable entrepreneurship since with their activities they allow sustainable startups to grow and succeed and with them their sustainable innovations. The extent of this contribution however remains at the surface level if no action is taken to specifically assisting startups in their sustainable performance. Nonetheless Business incubators are, a significant resource for increasing regional competitiveness and innovation (Tiba, van Rijnsoever, & Hekkert, 2020).

Contributions

This study adds to the literature about performance measurement of sustainable enterprises, in particular the field of start-up support programs. The information that emerged thanks to the study can be useful for academics in exploring the influence start-up incubators have on the sustainable performance of start-ups. Practitioners can apply the framework I developed to assess the extent of their contributions. In this way, they will understand if and how their operations are contributing to sustainable development. Being aware of that will enable them to maximise their contributions and increase the company's legitimacy in front of external stakeholders, particularly funders and potential participants.

Limitations and Recommendations for Future Research

This study does not come without limitations. The main limitations are connected to the framework I developed and its application. First of all, the variables selected for the framework are specific for the case of Innofest. Although I believe that they can be substituted with the specific activities of any other start-up support programs, not having experiment that I cannot guarantee the suitability. Each framework must be built specifically for the company based on its characteristics, mission, and interests. However, this can be a good starting point that each individual practitioner can supplement through a bricolage practice (Molecke & Pinkse, 2017). Second, the fact that the framework was applied just to a single case of study does not guarantee the generalizability of the results. Due to reasons of time, I could not test the application of the framework with other sustainable start-up support programs, so the results, being based on a single case study may not be adequately descriptive of the general population of start-up support programs. The reliability of the analysis is also affected from the fact that the results were not compared with the ones of another non-sustainable incubator. Lastly, being a qualitative study, it is characterized by biases, even if I took actions to limit this risk.

Future research should concentrate on refining the framework so it can be applied to other start-up support programs outside the Netherlands. In addition, to better highlight the additional value provided by sustainable support programs, it might be interesting to compare impacts of startups who participated to sustainable support programs to those who participated to non-sustainable ones. Furthermore, to have more precise results and reduce biases, start-up incubators' impact and contributions should also be calculated in quantitative terms. Also comparing start-ups' impact

before, during, and after incubation. Lastly, the overall performance of the start-up support program should be evaluated so as to understand what the direct impacts of the program are.

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APPENDICES

APPENDIX A: Interview guide with start-ups

- 1) **What is the name of your company and what is your innovation?**
 - Since when are you in the market?
- 2) When have you participated to the Innofest Loop and for how long?
 - At which moment did you join the Innofest loop (the innovation was just an idea/ already developed a prototype/ after having entered the market)
- 3) **Why did you choose to apply for the program with Innofest?** (Which was your aim?)
- 4) Has the aim be realized?
- 5) **Which one was the aim/goal of the testing?**
- 6) Was the testing useful for you and your innovation?
 - Did you achieve the goal?
 - Did you discover something else you were not expecting?
- 7) Did you repeat the testing?
- 8) Can you please describe your experience with Innofest?
 - On a scale of 10 how would you rate the experience with innofest? (1= bad; 10= very good)
 - Do you think that collaborating with Innofest was fundamental for the success of your start-up?
 - In which terms? I mean, which benefits did this bring to you? (e.g. increase in sales, revenues etc)
 - Main benefits
 - Main Challenges
 - Did working with Innofest contribute to your business? How?
- 9) Can you rate the results you obtained thanks to the Innofest loop on a scale of 10? (1= not helpful; 10= extremely helpful)
- 10) **Do you think your company would have been established regardless of attaining assistance from the incubator?**
- 11) What impact has participating in Innofest had on your venture's chance of success?

12) Have your company experienced growth since graduation?

- If yes how much has the company grown (e.g. annual turnover, employees, rate of export, etc)?
- If no, what has been the major obstacle towards growth?

13) Is your business still running?

- With which results?

14) Did you participate to other incubation or support programmes?

- If yes, why? What did you need that Innofest did not provide you?

15) To apply for the Innofest loop you need to contribute to at least one of these areas: *health, circularity, energy, food, water technology and wellbeing of the environment* - to which one is your business contributing?

16) Did INNOFEST encourage you to develop products/services that are economic, social and environmental sustainable?/ increase your sustainability?

- If yes, how did Innofest encouraged you to create sustainable businesses model?

17) Did INNOFEST contribute to develop products/services that are economic, social and environmental sustainable?/ increase your sustainability?

- If yes, how did Innofest contribute to create sustainable businesses model?

18) Are you measuring your (sustainable) performance?

- If yes, in which way? Do you use a particular tool or framework? Which are your results?
- If not, why not?

19) Would you say that working with Innofest also contributed in ameliorating your societal and environmental impact?

- In which way?

20) How likely is it that you would recommend Innofest to a friend or colleague?

APPENDIX B: Coding scheme

