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Report on the impact of incubators and accelerators in Canada

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Abstract

Global study has been conducted on the effectiveness of business incubators and accelerators in starting start-ups and assisting them along their entrepreneurial journey. Using the research methodology provided by Social Innovation Monitor (SIM), this thesis research analyses the business incubators and accelerators operating in Canada and examines industries in which significant social impact solutions are applied. In addition to examining the significant services provided by incubators in Canada, the research distinguishes the responsibilities of accelerators compared to incubators. It also looks at the problems, difficulties, and post-Covid financial situation of these programmes.

The literature review aided in gaining a deeper comprehension of the subject, and previous research papers and publications were examined. An analytical method and a quantitative method were used to collect and analyse data. The report concludes that training and network building are the two main purposes of Canadian incubators, and the majority of them use a variety of techniques to choose their tenants. A strong but dispersed start-up aid support infrastructure was also noted by the survey across the nation.

There are number of business incubators and accelerators in Canada that are created to support the development and success of entrepreneurs. These programmes, however, are facing a number of difficulties, including an attractive start-up sector, a shortage of funding, and restricted resources. The Covid-19 epidemic has also increased the difficulties these programmes are facing. Due to the economic effects of the epidemic, many entrepreneurs are having difficulties, and incubators and accelerators are working hard to support their tenants during these challenging times.

The study satisfies the study's goals and provides answers to the research questions. In Canada's post-Covid scenario, it highlights the speciality areas, selection standards, and services provided by incubators and accelerators. Additionally, it offers a trustworthy estimation of the number of incubators in each province.

The research found that the Canadian start-up ecosystem is relatively new and fragmented, with a wide range of services and resources provided by incubators and accelerators. Few incubators in

Canada provide access to capital, a crucial resource for businesses, but the majority provide co-working facilities, mentorship, and networking opportunities.

Most incubators choose their tenants based on a combination of quantitative and qualitative criteria. The qualitative metrics include the quality of the business idea, the strength of the team, and the market potential, while some of the quantitative measures include revenue, customer, and team size.

In summary, this study offers a thorough overview of the key roles, sources of finance, and difficulties encountered when assisting entrepreneurial teams and organisations in developing solutions with considerable social effect. The report sheds light on the function of business incubators and accelerators in Canada and draws attention to the difficulties these initiatives confront in the post-Covid era. To build a more encouraging and productive start-up environment in Canada, governments, incubator and accelerator operators, and other stakeholders can apply the study's recommendations.

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1.Introduction

The purpose of this section is to introduce the subject of the thesis report. The chapter begins with a brief explanation of the background and scope, then moves on to the research gap, questions answered by the thesis report, and lastly a summary of the thesis structure.

1.1 Background & Scope

Recent years have seen a significant increase in the utilisation of incubators and accelerators in Canada to help the expansion of start-ups and early-stage firms. These support systems are made to give entrepreneurs access to a variety of tools and services, such as mentoring, networking opportunities, funding, and business development resources. Understanding the effects of these support mechanisms on the start-up environment in Canada, particularly in terms of job creation, economic growth, and innovation, has drawn increasing attention.

Particularly considering the importance on innovation and entrepreneurship in the nation's economic growth policies, incubators and accelerators have emerged as essential elements of the Canadian start-up ecosystem. Over 200 incubators and accelerators are currently in operation in Canada, offering a variety of services to start-ups and early-stage companies in a variety of sectors and industries (Huggins, 2020). These support systems are crucial in providing the infrastructure and resources required for start-ups to develop and flourish.

According to research, incubators and accelerators have had a substantial impact on the Canadian start-up environment. According to research by the Brookfield Institute for Innovation and Entrepreneurship (Pickett et al., 2019), firms who participated in incubators and accelerators had a higher likelihood of securing funding, generating revenue, and adding jobs than those that did not. In a separate study, the Canadian Digital Media Network (CDMN) discovered that firms who took part in CDMN-funded accelerator programmes fared better than those that did not, in terms of survival rates and likelihood to turn a profit (CDMN, 2018).

Despite the increased interest in incubators and accelerators, thorough research on their effects in Canada is still lacking. While various studies have looked at the efficiency of programmes, additional study is required to determine the overall influence of these support systems on the Canadian start-up ecosystem. Additionally, research is required to compare the effects of various incubator and accelerator programmes, as well as their effects on start-ups in various industries and geographical areas.

This study aims to investigate how incubators and accelerators affect the start-up environment in Canada. In order to collect and analyse both qualitative and quantitative data, this study will employ a mixed-methods approach. The study will look at the effects of various incubator and accelerator models on start-ups in various industries and Canadian locations. The study will also look at how incubators and accelerators help the Canadian start-up ecosystem to drive innovation, job creation, and economic growth.

Overall, this study will help us better understand how incubators and accelerators affect the start-up ecosystem in Canada. The results of this study can be used to guide the creation of more efficient start-up support programmes in Canada and to give policymakers and other stakeholders a better understanding of the role that these programmes play in promoting innovation and economic development.

1.2 Research gap

Even though the research and literature from the past give the best information and analysis about business incubators and accelerators, there aren't many thorough studies on how incubators and accelerators affect businesses in Canada. In addition, the majority of research has focused on technology-based start-ups, leaving a knowledge gap regarding the impact of incubators and accelerators on other types of start-ups. Further research is required to investigate the unique factors and challenges associated with incubators and accelerators in the Canadian context and to determine how participation in these programmes affects various types of start-ups.

1.3 Research questions

The following specific research questions will be addressed in this project:

1. What are the various issues and challenges of start-up incubators and accelerators in Canada?

2. What is the post-Covid financial status of start-up incubators and accelerators in Canada?

3. What are the specialist areas, selection criteria, and services offered by incubators and accelerators in Canada's post-Covid scenario?

1.4 Thesis Structure

This project report is divided into sections that present the research activity, findings, and conclusion in a logical order. The first section introduces the study's background and scope, the research gap, the research questions, and the structure of the thesis. This section provides an overview of the study's research activity, expected results, and framework of the study.

The second section of the report consists of a literature review intended to establish a foundational understanding of the topic and its definitions. It also includes a review of relevant previous research and literature to provide context for the significance of the research topic. The third section describes the methodology employed for the research project and the steps necessary to complete the study. This section describes the all the activity, beginning with the creation of the incubator database and concludes with data collection.

The findings from the research are presented in the fourth section. It provides a comprehensive analysis of the numerous factors affecting incubators and accelerators in Canada. The fifth section concludes the report with a discussion of the study's limitations and proposed future research to obtain additional information. It also contains a summary of the research's results, which provides an overview of the study's findings.

2.Literature Review

This chapter provides an overview of previous research on the subject as well as a comparison between conventional incubators and social incubators. The importance of accelerators and incubators in the entrepreneurship process is highlighted.

2.1 What are Business incubators and Accelerators?

Business incubators and accelerators are two major concepts in the entrepreneurial ecosystem. The main objective of these programs is to ensure the growth and development of start-ups and early-stage companies by providing them with a range of resources and support services.

Incubators are organisations that increase the growth and development of start-ups. According to Carayannis and Alexander (2016), a business incubator is a programme that provides entrepreneurs with physical space, resources, and services to assist them in developing successful business ideas. Common services provided by incubators include office space, mentorship, networking opportunities, funding access, and training programmes. On the other hand, accelerators are organisations that assist entrepreneurs in accelerating their development and expanding their businesses. Accelerators, according to Yusuf et al. (2016), are intensive programmes that provide mentorship, networking opportunities, access to funding, and other resources to help entrepreneurs expand their businesses swiftly. Accelerators deal with entrepreneurs for a brief period of time, typically between three and six months.

There are various categories of business incubators and accelerators based on their focus, ownership, and funding sources. There are three primary categories of business incubators, according to Hackett and Dilts (2004): university-based incubators, government-sponsored incubators, and private sector incubators. In similar ways, business accelerators can be classified based on their focus, ownership, and funding sources. There are four primary categories of business accelerators, according to De Clercq et al. (2018): corporate accelerators, independent accelerators, industry-focused accelerators, and geography-focused accelerators.

The numerous benefits of business incubators and accelerators have been extensively studied in the academic literature. According to De Clercq et al. (2018), business incubators and accelerators offer access to funding, mentoring, networking opportunities, and training programmes. These resources help entrepreneurs in the development of their business concepts, improvement of their strategies, and expansion of their operations. Incubators and accelerators also provide investments with a community of similar entrepreneurs, which can enhance their growth.

2.2 Origin and evolution of business incubators and Accelerators

Business incubators have been around since the 1950s, when the Batavia Industrial Centre in New York was set up to help small businesses. According to Hackett and Dilts (2004), the concept of business incubation rose to prominence in the 1980s, when the U.S. government began funding business incubators as a strategy for promoting economic development.

There have been numerous milestones in the evolution of business incubators, including the establishment of various categories of incubators. According to Carayannis and Alexander (2016), the primary objective of the first generation of business incubators was to provide entrepreneurs with affordable office space. The next generation of incubators, which emerged in the 1990s, began to offer additional services, such as mentorship, training programmes, and financing access. The third generations of incubators, which emerged in the 2000s, emphasised providing entrepreneurs with specialised services, such as access to industry-specific and networks.

The concept of business accelerators appeared in the early 2000s. According to Yusuf et al. (2016), Y Combinator, a Silicon Valley-based start-up incubator, established the first business accelerator in 2005. The programme provided businesses with access to a network of angel investors and a three-month intensive training programme. Since then, the concept of business accelerators has gained popularity, and several accelerators that provide entrepreneurs with a variety of resources and support services have emerged globally.

The evolution of business incubators and accelerators has been influenced by a number of factors, including changes in the entrepreneurial environment, technological advancements, and the rising demand for start-up support services. According to De Clercq et al. (2018), the increase in the

number of start-up incubators and accelerators is due to the increasing significance of innovation and entrepreneurship in accelerating economic growth and development.

2.3 Role of incubators and accelerators

The role of business incubators and accelerators is crucial in a business economic development. According to Alpenidze (2019), the primary role of business incubators is to provide support and resources to start-ups, with the aim of improving their growth. Incubators provide a range of services such as funding, mentorship, training, and networking opportunities. These services are mainly focused to overcome the challenges faced by start-ups, such as limited resources and lack of business expertise.

On the other hand, business accelerators focus on providing start-ups with intensive training and support, with the aim of helping them to rapidly grow their businesses. As highlighted by Landoni et al. (2020), accelerators provide start-ups with wide range of resources such as seed funding, mentorship, networking opportunities, and specialized training programs. The aim is to help start-ups achieve growth and expansion, with the ultimate goal of achieving profitability and sustainability. One of the key roles played by business incubators and accelerators is to create new ventures and job opportunities. As per Aernoudt (2004), business incubators have a positive impact on local economies by providing support to start-ups and supporting entrepreneurship. Incubators create an environment that helps to innovation and creativity, which leads to the development of new products and services. As a result, this creates new job opportunities and economic growth.

Another key role played by business incubators and accelerators is to provide start-ups with access to funding. According to Grimaldi and Grandi (2005), access to funding is a critical factor in the success of start-ups. Business incubators and accelerators provide start-ups with access to a network of investors and funding sources, which improves their chances of securing the funding to grow their businesses. finally, business incubators and accelerators play a key role in building entrepreneurial ecosystems. According to Landoni et al. (2020), these programs provide start-ups with access to a network of mentors, advisors, and industry experts, which helps to build a supportive community of entrepreneurs. which will create lot of good mentors and financial advisors and which reflect positively in the coming generation.

Table 1: Major difference between Incubators and Accelerators

Characteristics	**Incubators**	**Accelerators**
Duration	1-5 year	3 Months
Cohorts	No	Yes
Business Model	Rent: Non-profit	Investment: Can be non-profit
Selection	Non-competitive	Competitive, Cyclical
Mentorship	Minimal: Tactical	Intense: By self or others
Venture Location	On site	On site
Venture state	Early or late	Early
Education	Ad hoc, human resources, legal	Seminars

Table reference (Susan L. Cohen 2013)

2.4 Key impact and performance

The success of business incubators is strongly correlated with the availability and accessibility of external financial resources, the strength of social and professional networks, and internal strength, including resources and capabilities (Alpenidze, 2019; Landoni et al., 2020; Aernoudt, 2004; Grimaldi & Grandi, 2005). Establishing an ideal environment for the development of start-ups requires the availability of capital. Due to high capital costs, high collateral requirements, and weak relationships with financial advisors, obtaining financing is difficult for small and medium-sized businesses, particularly in developing nations (Alpenidze, 2019). (Kljucikov & Belas, 2016) Studies indicate that the financial barrier is more significant for small businesses than for large businesses, negatively impacting their ability to grow.

In the case of limited resources, social and business networks are essential for business incubators to identify opportunities and increase entrepreneur effectiveness. Fernandez-Perez (2014) says social networks save crucial time when evaluating decision-making criteria, minimising the process and accelerating procedures. (Alpenidze, 2019) Business incubator networks provide

entrepreneurs with access to mentors, business partners, and assistance during and beyond the incubator phase, effectively improving social networks and increasing the likelihood of success.(Fernandes et al., 2016; Apa et al., 2016). The literature review suggests that the incubator's internal (non-financial) resources and capabilities play a significant role in its performance. (Alpenidze, 2019) Business incubators must have adequate space and specially designed training programmes in order to be successful. (Dutt et al., 2015) Business training has a positive impact on a business's revenue or profit, and effectively develop skills taught in training. The management team should have measurable objectives, and administrators should be encouraged to promote and acknowledge exceptional performance. (Alpenidze, 2019) The team leader should have business experience, entrepreneurial skills, an aptitude for organisation and leadership, and strong community connections.

Sustainability is the most important measure of an incubator's efficiency, and incubators should operate as profitable businesses. (Alpenidze, 2019) Incubators should have their own sources of sustainability, such as receiving equity, royalties, or ongoing subsidies. The review emphasises the importance of external financial resources, social and professional networks, internal resources, and competent management for the success of business incubators and accelerators.

2.5 Entrepreneurial process

The stages of the incubation process mainly includes assessment of needs, decision-making, oversight, capital expenditure, and access to professional networks (Campbell et al., 1985; Brooks, 1986). There are several suggested typologies or models, including high-tech, corporate, university-based, and not-for-profit ones, which are compared and contrasted based on a variety of traits attributed to each model's specific incubation approach. (Lumpkin and Ireland, 1988; Allen and McCluskey, 1990; Weinberg et al., 1991).

The initial business incubation process model was created by earlier scholars who studied the incubation phenomena, such as Campbell et al. (1985). Four fundamental "services" or value-adding activities make up the Campbell, Kendrick, and Samuelson model, which serves as a focal point for how incubators affect corporate success. The first step in adding value is to analyse the needs of potential incubatees' new company proposals. The successful businesses chosen for incubation (known as incubator tenants) are kept under observation after a successful diagnosis.

The tenants of the incubator additionally benefit from extra value-adding activities like as financial investment and access to professional networks with the possibility of venture financing. After completing the incubation phase, the tenants become successful growth initiatives or businesses.

The idea of a "black-box" serves as the foundation for a model of the company incubation process created by Hackett and Dilts (2004a). The method focuses mostly on what occurs inside the incubator, with a connection to its surroundings. The Hackett and Dilts approach views business incubation as the process of choosing incubatees from a large pool of hopeful candidates who 'enter' the incubation "black box." The incubatees engage in value-adding activities in three different ways: resource generosity, monitoring, and business help intensity (which is also a factor in selecting prospective incubatees). The incubatees are then produced from the incubation "black box" as graduated businesses with a success or failure outcome. The population size, economic situation, size of the incubator, and stage of development of the incubator are all control factors in the Hackett and Dilts model. Their business incubation process model, in summary, consists of three basic activities: selecting weak but promising firms to be admitted to the incubation programme, monitoring and assisting those that would be successful, and finally providing the necessary resources to help them develop and graduate from the incubation programme as financially viable and freestanding firms. By effectively creating of and putting into action programmes that concentrate on delivering targeted resources and services, business incubation is a policy tool that supports the growth of the entrepreneurial sector. These services, which are intended to enhance entrepreneurial endeavours, are organised to offer focused and particular advantages for the enterprises that have been incubated (Fa Ayatse et al.2017).

2.6 Taxonomy of Start-up assistant organizations

The primary categories of start-up assistance organisations are incubators, accelerators, eco-system builders, and other support programs (C. Scott et.al.2014).

2.6.1 Incubators

Organizations called incubators provide systematic, individualised, and long-term support to businesses and entrepreneurs in the early stages of development. Additionally, they frequently give the participants access to offices. Typically, incubators assist start-ups in the validation of their concepts, testing and vetting of possible customers, development of workable business models,

and perhaps even aiding in the creation of early traction (C. Scott et.al.2014). Five categories of business incubators are business innovation centers (BICs), university business incubators (UBIs), technology incubators, independent private incubators (IPIs) and corporate private incubators (CPIs) (Grimaldi and Grandi 2005).

The BICs (Business Innovation Centres) were the earliest and most well-known public incubators in Europe; they first appeared in 1984, when the European Commission spearheaded the establishment of the first BICs. The incubation function of BICs entails providing a range of fundamental services to tenant businesses, such as office space, infrastructure, routes for communication, knowledge of available external financing, and visibility.(Grimaldi and Grandi 2005).

Universities have historically played a crucial role in the innovation process by creating, preserving, and disseminating fundamental information. Universities have also taken on a bigger role in creating and using applied knowledge since the middle of the 20th century, especially in the scientific and technological sectors (Henderson et al.1998). Universities often work in the fields of education and public service, but lately they have started to help business development initiatives. They have developed entrepreneurship course curricula, overseen company plan competitions, and offered entrepreneurial scholarships in an effort to boost entrepreneurial ability and foster exceptional ideas. University incubators can help entrepreneurs by providing access to libraries, cutting-edge technology, lab use, faculty, staff, and student labour, as well as access to a creative atmosphere (Smilor and Gill, 1986). University Business Incubators offer assistance and services to new businesses and they provide additional services, such as access to university labs and computing resources, student workers, and faculty advisers, to their tenant start-ups (Mian, 1996).

Technology business incubators provide a means of transferring technology, enhance the notion of growth through innovation and use of technology, support strategies for the economic development of small businesses, and encourage growth from within local economies (Rhonda 2002). Technology business incubators combine the ideas of promoting the growth of new businesses with those of commercialization and technology transfer. Research and development (R&D) institutions and businesses frequently look for ways to spread technology, encourage entrepreneurship, and work together on projects. (Smilor &Gill 1986). Technology incubators

show a higher number of patent applications, tenant employment, and income compared to other incubators. However, they also have higher costs and average operating deficits. (Rhonda 2002).

University incubators attempt to utilise technological insights from the university in a manner similar to that of corporate incubators, which are for-profit institutions used to accelerate a corporation's technology development. It is possible to use lessons from two corporate incubator archetypes—the fast-profit incubator and the leveraging incubator—in accordance with their unique purposes, organisational structures, incubator processes, and resource flows. Fast-profit incubators, leveraging incubators, insourcing incubators, and market incubators are the four main types of corporate incubators. Each has associated, yet distinctive, characteristic (Barbara & Oliver 2006).

Independent incubators are stand-alone companies committed to developing and expanding start-ups. Corporate incubators for open innovation are created by established businesses to combine their expertise in effectively implementing business models with the adaptability of start-ups (Weiblen & Chesbrough 2015). Independent incubators typically offer some kind of support for new businesses, such as mentoring them as they transition from an early venture to a successful, expanding business. Independent incubators that focus on digital start-ups approach it differently based on their assistance levels and focus areas. We categorise independent incubators into four categories based on these factors: mentor, matchmaker, facilitator, and enabler. (Anders et.al.2019).

2.6.2 Accelerators

There are different types of accelerators, each with a unique set of characteristics and benefits (Landoni, 2018). These types include corporate accelerators, seed accelerators, government accelerators, virtual accelerators, industry-specific accelerators, and university accelerators.

Corporate accelerators are a form of accelerator programme run by large corporations. These programmes seek to provide access to the resources and expertise of the sponsoring corporation, such as funding, mentorship, and industry connections, to start-ups. According to a study by Guo and colleagues (2020), corporate accelerators are gaining popularity as a method for corporations to engage with entrepreneurs and increase innovation.

Seed accelerators, also known as start-up accelerators, are a form of programme that provides mentorship, funding, and other resources to assist start-ups at an early stage in developing their businesses. Start-ups have access to a network of mentors, investors, and industry experts through seed accelerators, which typically operate for a fixed period of time, typically between 3 and 6 months. According to a study by Baptista and colleagues (2020), seed accelerators can considerably enhance the performance of businesses and increase their likelihood of success.

Government accelerators are programmes run by government organisations. These programmes mainly aim to create innovation and support businesses in certain sectors or areas. Government accelerators may provide funding, mentorship, and access to industry networks to fledgling companies. According to a study by Hlady-Rispal and colleagues (2020), the popularity of government accelerators is growing, particularly in regions with major government support for start-ups.

Virtual accelerators are accelerator programmes that operate exclusively online and do not require entrepreneurs to be physically present at a particular location. These programmes also provide entrepreneurs with mentorship, funding, and access to industry networks, among other resources. According to a study by Landoni and colleagues (2020), virtual accelerators can be an effective method for assisting entrepreneurs in remote or underserved regions.

Industry-specific accelerators are accelerator programmes designed to assist start-ups in a particular industry or sector. These programmes provide start-ups with mentorship, funding, and access to industry networks, among other resources. According to a study by Cohen and colleagues (2020), industry-specific accelerator offer entrepreneurs a high level of industry knowledge and assistance for their success.

Accelerator programmes run by universities give assistance to start-ups whose founders, technologies, or research are associated with a university . University accelerators may provide fledgling companies with funding, mentorship, and access to university resources . Baptista and colleagues (2020) discovered that university accelerators can substantially improve the performance of entrepreneurs and increase their chances of success.

2.6.3 Business Angels

Mason and Harrison (1996) observe that Business Angels possess a high level of financial knowledge and experience, enabling them to assess the risks and benefits of potential investments. Aernoudt's (2005) study shows the crucial role that Business Angels play in helping the economic innovation by investing in start-up companies and contributing beyond financial capital through counselling, mentoring, and networking. Additionally, business angels play an active role in company management and operation as mentors.

2.6.4 Venture Capitalist

Venture capitalists are defined by Gompers and Lerner (1998) as investors who provide capital to start-up companies with huge growth potential. Typically, these investors utilise a limited partnership structure, in which limited partners invest in the Venture Capital fund and general partners invest in the ventures. Typically, the relationship between venture capitalists and entrepreneurs is long-term, and venture capitalists are known to provide support to their portfolio companies even after they have left their investment (Gompers and Lerner, 2001).

2.7 Value Proposition

A study by Molnar and Brouwer (2015) shows that business incubators are able to help start-ups to solve the challenges associated in the early stage of a new business, such as getting funding, developing a business plan, and finding new network. The authors say that business incubators can provide entrepreneurs with a supportive environment in which to develop their ideas, network with other firms and investors, and gain access to resources.

Greer and Haines (2017) found that business incubators can reduce the risk of failure and increase the chances of success The authors found that that businesses that participate in an incubation programme are more likely to succeed and grow than those that do not. This is due to the fact that incubated entrepreneurs have access to a variety of support services and resources that help them overcome common obstacles, such as securing funding, developing a product, and reaching customers.

In addition to encouraging entrepreneurship and increasing economic development, business incubators may also promote innovation. According to a study by von Stamm (2008), business

incubators may promote an innovative culture by providing entrepreneurs with access to resources and networks that help them develop and commercialise their ideas. The author says that incubators can create an environment that encourages entrepreneurs to take risks, experiment, and extending the limits of what is possible. However, there is evidence that incubators may not be equally effective in creating entrepreneurship and innovation across all regions and industries. For instance, Venkataraman and Sarasvathy (2001) discovered that incubators are more effective at promoting entrepreneurship in certain industries, such as technology, than in others.

2.8 Effectiveness and impact of Incubators and Accelarators

Business incubators and accelerators have emerged as key actors in the development of start-ups by providing them with essential resources such as mentorship, networking opportunities, and funding access (Alpenidze, 2019). These support organisations play an essential role in mitigating the challenges faced by start-ups (Landoni, Eriksen, & Brostrom, 2020).

Several studies have demonstrated that business incubators play a crucial role in building the growth of new start-ups. Aernoudt (2004) found that incubators can be effective instruments for supporting entrepreneurship. Grimaldi and Grandi (2005) studied various incubation models and concluded that they can considerably contribute to the establishment and development of new businesses. However, the effectiveness of incubators depends on a number of factors, including the availability of funding, the quality of the incubator's resources, and the creative skills of its participants (De Clercq, Thongpapanl, and Dimov, 2018).

Accelerators, on the other hand, have grown in prominence in recent years as a means of supporting the development of start-ups. Accelerators are more effective at assisting start-ups in their later phases of development, such as post-seed and pre-series, according to Landoni et al. In addition, they discovered that accelerators can help start-ups develop networks and obtain access to growth-supporting resources. It is important to note, however, that accelerators may not be suitable for all types of start-ups, as they tend to focus on particular industries or technologies (Aernoudt, 2004).

However, both business incubators and accelerators have their advantages and disadvantages, they share some similarities. For instance, both types of support organisations provide access to mentors, resources, and networks that can assist start-ups in overcoming obstacles and growing.

Moreover, both forms of organisations can help attract external funding for start-ups (Dutt et al., 2015).

Numerous factors influence the success of a start-up, making it difficult to assess the impact of business incubators and accelerators on its development. There is evidence, however, that both forms of support organisations can contribute to the success of a start-up. According to Alpenidze (2019), business incubators can assist start-ups in developing a firm business plan and strategy, thereby increasing their likelihood of success. In addition, start-ups that have participated in accelerators have a greater chance of raising capital, generating revenue, and accomplishing a successful exit (Landoni et al., 2020).

2.9 Incubators and Accelerators within Canada

In recent years, there has been a significant rise in the number of accelerators and incubators inside the Canadian start-up ecosystem. Fisscher and de Kok (2019) studied the impact of incubators on the survival and expansion of Canadian start-up economy. The study found that incubated Canadian start-ups had a higher survival rate and were more likely to develop than those that were not in the part of iincubation process. The authors say that this start-ups associated with incubation program get access to facilities such as mentorship, funding access, and networking opportunities.

In addition, Landoni et al. (2020) considered the role of accelerators and incubators in encouraging start-up growth in countries, like Canada. According to the study, these programmes supported start-ups in tackling early-stage the obstacles like product development and market validation. In addition, the authors discovered that accelerators and incubators played a crucial role in enabling companies' access to financing and networking opportunities, which are essential for growing up.

De Silva et al. (2018) studied the impact of accelerators on the efficiency of Canadian businesses in a separate study. The study found that Canadian businesses that participated in accelerator programmes reported a higher rate of employment creation and revenue growth than those that did not. Accelerators provided mentoring, access to resources, and exposure to investors.

Moreover, Link et al. (2019) found that the role of government-supported incubators in supporting innovation and economic development in Canada. The study discovered that incubators supported

by the government had a positive effect on the innovation output of entrepreneurs, such as their patent activity and new product development. Additionally, the authors discovered that these programmes had a positive effect on the economy, as they led to the creation of new employment and generated new revenue streams.

In addition, Duggal and Dunn (2018) analysed the impact of MaRS Discovery District, a Toronto-based incubator, on the success of its incubated enterprises. Compared to non-incubated start-ups, MaRS-incubated start-ups were more likely to achieve successful exits, such as mergers and acquisitions or initial public offerings. The authors credit MaRS's high-quality mentoring, access to funding, and networking opportunities for their success.

2.10 Impact of the COVID-19 Pandemic on incubator business model

A sustainable start-up must be innovative, flexible, and adaptable to changes (Smallbone et al., 2012), so they can modify their business model, organisational infrastructure, and change employment practises, sales, marketing, and processes or even go completely in new directions with their firms to survive within the COVID-19 crisis much easier than big companies (Kuckertz et al., 2020). The serious COVID19 pandemic in 2020 compelled businesses and organisations to look for strategies to maintain operations while limiting the difficulties brought on by the circumstance. Numerous activities and programmes were on the verge of being cancelled due to the authorities' restrictions on physical contact and social distance. As a result, event planners began looking for a way to use digital technologies to shift their events into an online setting. The number of online events and activities increased as a result in the year 2020. For example, Boost Turku adopted an online approach for their yearly Start-up Journey Accelerator as part of this online revolution (T Le – 2021).

Three components of the start-up accelerator experience have been altered by such online changes: interaction, engagement, and support networks. The dynamic and amount of in-person interaction versus online interaction are very different, to start. Regardless of the number of concurrent viewers, the speaker only interacts with one camera and a small amount of body language in the online setting. The dynamic of bilateral connection is lost, even though the person may be able to

concentrate better on the subject and avoid being side-tracked by an outside factor. Additionally, the absence of physical proximity between participants limits their motivation to participate in the discussion portion of workshops, follow-up meetings, and pitching training. Secondly, in an online setting, it is more difficult to keep individuals interested. Finding substitute activities should be the answer in the case of the entertainment experience rather than attempting to replicate in-person activities online. Furthermore, due to the online program's strict time constraints, it is more difficult for the participants to develop stronger bonds with one another and the coaches. These bonds are often developed during the informal time of in-person 1-on-1 coaching sessions. Furthermore, because there are no geographical restrictions like there are with in-person programmes, the online transitions have allowed the participants to have a wider network of support. Overall, it is evident that the program's online transitions have had an impact on every aspect of Start-up Journey 2020. (t le 2021).

In an effort to convert the entire programme to an online format, Start-up Journey 2020 adopted a total of seven online tools: Remo to replace in-person 1-on-1 coaching and Demo Day; Zoom Meeting to replace face-to-face workshops, pitching training, follow-up, and after work; Miro for an online collaborative workspace; Telegram for official and instant communications; and Slack to replace email. Even though the parallel use of numerous internet tools was popular by the time of the programme, each person's ability to use these tools still largely dependent on their level of technological literacy. The tools that were the simplest to use were Zoom Meeting, Google Drive, Google Form, YouTube, and Telegram because either the participants had experience with the applications before or because of their straightforward functionalities and user-friendly design (T Le 2021). Incubator and accelerator programmes had to adapt as a result of COVID-19 essentially overnight. The start-ups (S1, S2, S3, S4) characterise the modifications as a novel hybrid working experience. Numerous programme meetings were held online using Zoom. One business (S1) talked about how it was difficult to build genuine relationships with other entrepreneurs in the programme because of the challenges of the six-hour online seminars. Three start-ups (S1, S2, and S4) received a variety of opinions, but there were many common themes in their responses when they complained the absence of face-to-face interaction when networking. The advantages of the COVID19 adjustments may be possible for another restart (S2). Due to their ability to now enrol in the same programme, other entrepreneurs may be offered a greater international exchange. The

same start-up emphasised that it would be advantageous for global expansion as the connections might be more beneficial than just providing local programmes (L Maurer, F Nagel - 2021).

2.11 Impact of the COVID-19 Pandemic on incubators inside Canada

Green and Malecki (2020) studied the impact of the pandemic on incubators that support innovation and entrepreneurship. To support their participants during the pandemic, Canadian incubators had shifted their focus from physical spaces to virtual offerings, such as online mentoring and networking. The authors also say that incubators implemented new practises to support start-ups as a result of the pandemic, such as providing additional financial resources and adapting their programmes to meet the requirements of start-ups during the pandemic.

Fjeldstad and Snow (2020) found that the effect of the pandemic on the incubation of Canadian firms. Their study says that the pandemic caused significant challenges for incubators, including the loss of physical space and limited the funding opportunities. The authors also reported that incubators had adopted new virtual practises and programmes to support their participants during the pandemic as a solution to these challenges.

In addition, Yu et al. (2021) studied the effect of the pandemic on the outcomes of incubated Canadian start-ups. Start-ups that had been incubated prior to the pandemic were more likely to survive, according to the study. However, the authors found that revenue growth and funding opportunities for incubated businesses decreased during the pandemic. According to a study conducted by the National Research Council of Canada (NRC 2022), business incubators and accelerators in Canada received funding from various federal and provincial programmes; however, the accessibility and availability of these programmes varied significantly by region and incubator or accelerator.

3.Methodology

This thesis on the impact of accelerators and incubators in Canada employed a multi-stage research methodology. It began with the construction of a detailed database, followed by the collection of data, the development of a questionnaire, and the execution of surveys. The collected data were then analysed in order to draw conclusions and make suggestions.

3.1 Overview

For this undertaking, a methodology was adopted that drew heavily from successful research methodologies from the past. Combining primary and secondary research is the most efficient method for conducting this type of study. The study began with secondary research on essential data collected by previous studies.

The research activity consisted of five steps that were applied to better understand the Canadian incubators and accelerators:

a) Update the current list of incubators and accelerators operating in the Canada(October 2022)
b) Prepare Questionnaire for the primary research (November 2022)
c) Conduct a survey of incubators/accelerators regarding their incubation and acceleration activities in 2021 (November 2022 - February 2023)
d) Analyse the collected data, draw conclusions, and make recommendations (March-April 2023).
e) Prepare a report based on the research findings and conclusions (May-June 2023).

3.2 Updating list of Canadian Incubators and Accelerators

Using the available SIM database (based on the previous research list) and numerous other internet sources, preliminary research was conducted in order to get an understanding of the Canadian incubator population. Subsequently, the database was updated with the incubators and accelerators identified through secondary research on the internet, including public databases like Google, social media platforms like Linkedin, Instagram, and Twitter, as well as lists compiled by other

organisations. The resultant Excel file contained a list of incubators and accelerators with their respective contact information. Excluded from the list were incubators and accelerators that did not meet the eligibility requirements, such as co-working spaces that primarily provided rented spaces and similar facilities, venture capital firms that only focused on funding, and those that ceased operations following the COVID-19 pandemic. This was required to ensure the database adequately represented the Canadian incubator and accelerator population.

3.3 Survey Questionnaire preparation

This section of the research involved the gathering of primary data through the development of a survey questionnaire. Survey Monkey, a cloud-based platform that stores data on secure servers in the United States, was used to conduct the survey. Based on the Social Innovation Monitor (SIM) 2022 survey in Canada, the questionnaire was developed. However, a few modifications were made to the original survey, including the addition of queries regarding the impact of COVID-19.

The questionnaire contained six distinct sections. The first section collected general information regarding the incubators, including their business name, year of establishment, number of employees, and geographic location. The second section centred on the enterprises, including the mode of start-up selection, the average duration of incubation services, the number of incubated teams, and the proportion of non-profit, hybrid, and for-profit businesses fostered.

The third section collected financial information, including an analysis of costs and revenues. The fourth segment centred on financing and community, including income from incubation activities, the number of equity shares obtained, and the capacity to offer business workshops or seminars. The fifth compiled information on the services offered by incubators to start-ups and the last section regarding the changes happened after the pandemic.

The goal of this study was to learn how incubators and accelerators in Canada work and how they affect start-ups by using this detailed questionnaire to collect data. The resultant data was analysed in order to draw conclusions and make suggestions for improving the performance of these organisations.

3.4 Data collection and analysis

Using the SurveyMonkey platform, a survey was conducted in three phases between November 2022 and February 2023. More than 190 incubators and accelerators were predominantly contacted via email from the University of Windsor. The survey link was emailed four times to accommodate for the various time zones in Canada. Participants were permitted to skip queries and the survey was flexible and voluntary. There was no submission deadline stated. The University of Windsor's ethics committee authorised the pre-structured email.

In the initial phase of the survey, there were few responses(15 responses). A second survey was sent out in late December, resulting in an increased response rate(26 responses). The final survey round was administered in mid-January, and a respectable response rate was obtained(13 responses). Those who completed the survey were provided with comprehensive access to the report.

The collated data were analysed, including the distribution of incubators and accelerators in Canada, the services provided by these organisations, and their effectiveness. A conclusion was introduced to summarise each topic's key points and provide a concluding opinion on each. The limitations of the study and recommendations for future research were also included to make possible further study.

3.5 Ethics Board approval

The Tri-council Research Policy ensures that all research conducted in Canada complies with ethical standards, especially research involving humans or their biological materials. As our research involves human decisions, we must obtain approval from the University of Windsor's Research Ethics Board (REB). For REB approval, we completed the Tri-Council Policy Statement Short Course and obtained the necessary certificate in September 2022.

The REB ensured that participation was entirely voluntary, and participants had the option to withdraw until the online survey was submitted. There was no collection of personally identifiable information, such as names, addresses, or other identifiers. Due to the disparities in population, regional economies, regulations, and governments across Canada, as well as between campus and non-campus institutions, we needed information about the incubator's location and whether or not it was a university or community-based institution. In the email, we informed participants that this information would be kept confidential. In addition, this information would be omitted from the final report distributed to survey respondents.

4. Findings

This section provides a summary of the research findings and analysis regarding the impact of incubators and accelerators in Canada. The discussion begins with an understanding of the population and geographic distribution of these organisations, followed by an analysis of their workforce size, financial performance, sector of operations, and the nature of the support activities they offer to their incubates.

4.1 Sample analysis

Out of the 208 survey invitations issued through the University of Windsor email account, 13 invitations were undelivered, and 2 of the recipients were no longer associated with incubators. Despite these challenges, a total of 57 responses were received for the survey. Among these responses, 20 were completed in full by the participants. The responses were gathered in three phases, with 16 responses obtained in the first phase, 28 responses in the second phase, and the remaining responses collected in the third phase of the survey.

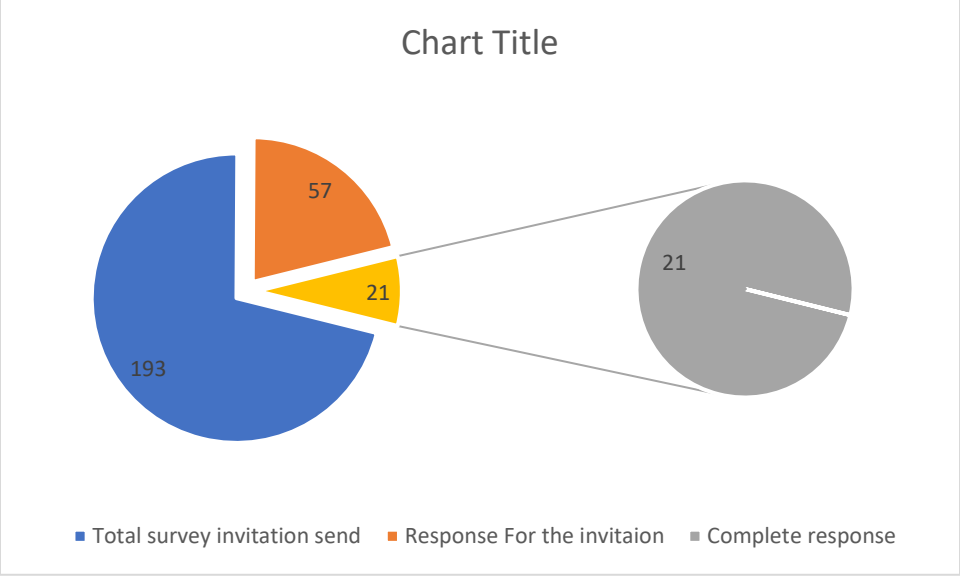

Figure 1 Sample analysis

4.2 Types of Incubators

The figure 2 shows how the different types of incubators are spread out in Canada based on their number and percentage. According to the data, there are three primary categories of incubators: community-based, campus-based, and others. There are thirteen community-based incubators in Canada, i.e., 41.9% of the total number of incubators in the country.

Campus-based incubators are the second common form of incubator, which consist of 29.0% in the total number of incubators. There are nine incubators in the "other" category which consist of 29.0% of the total number. This category encompasses incubators that are neither campus-based nor community-based, such as industry-specific incubators, non-profit organization, regional innovation centres and government-funded incubators.

The data indicate that community-based incubators are the most common type in Canada, followed by campus-based incubators and other varieties.

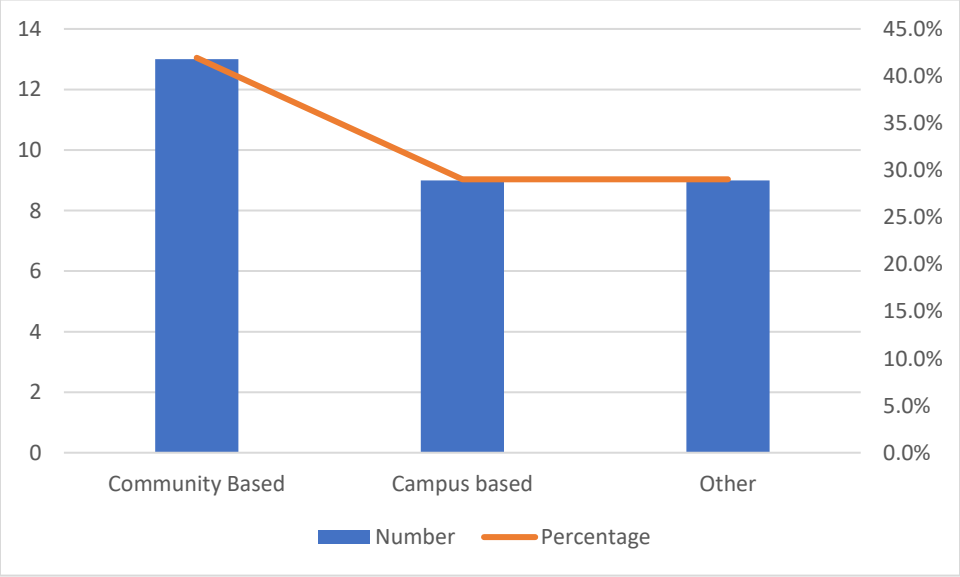

Figure 2 Types of Incubators

4.3 Number of Employees

The figure 3 illustrates the distribution of employees operating in Canadian incubators. The horizontal axis represents Incubators, while the vertical axis represents number of employees.The majority of incubators in Canada have one or two employees according to the data.

According to the data, the majority of incubators in Canada are relatively tiny, with one or two employees. This may be due to the focus of many incubators on early-stage start-ups, which typically have limited resources and fewer teams. However, the data also indicates that there are larger incubators in Canada, which may indicate opportunities for industry growth and expansion.

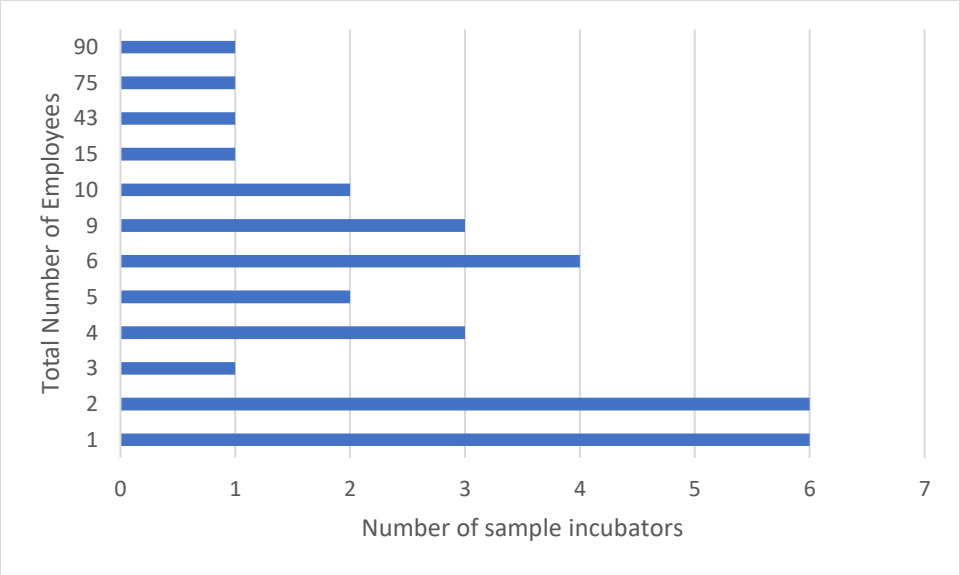

Figure 3 Number of Employees

4.4 Total Incubation Space

The horizontal axis (figure 4) represents the variety of square metres and the vertical axis represents the number of incubators in Canada. The data indicates that 77.4% of incubators in Canada, occupy 0-2500 square metres. Three incubators were mid-sized, with two incubators occupying 5001-7500 square metres, and one incubator, occupying 10001-12500 square metres. Remarkably one incubator was exponentially larger than any other, occupying a huge space of 32501-35000 square metres.

We concluded from the data that the majority of incubators in Canada are comparatively small, occupying less than 2500 square metres. This may be because many incubators are designed to support early-stage start-ups that do not require expansive accommodations.

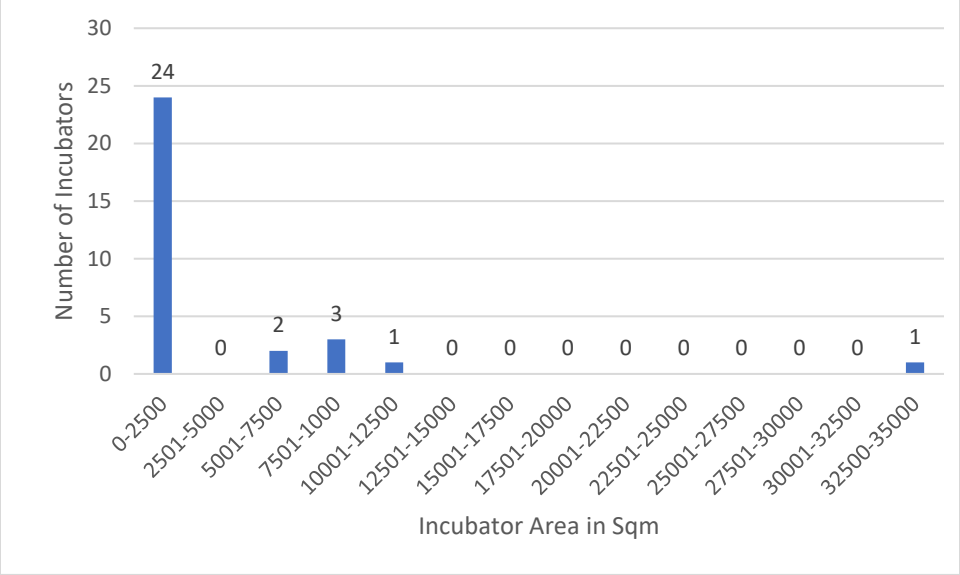

Figure 4 Total incubation space

4.5 Sector Specialization of Incubator

The horizontal axis of Figure 5 represents the various sectors, while its vertical axis represents the proportion of incubators and accelerators that are concentrated on each sector. According to the data, the majority of incubators and accelerators do not specify a particular industry. Innovation and technology is the most frequently specified sector, accounting for 12% of the total. Social innovation (10%), healthcare (6%), agriculture (6%), and legal technology (4%) are also relatively well-represented industries. Several industries, such as finance, food, aqua, forest, sustainable connected, mobility, digital health, and the arts and culture, are represented by only one or two incubators and accelerators.

Overall, the data suggest that “innovation and technology” is the most common sector for incubators and accelerators in Canada, which is consistent with the country's reputation for technological innovation. But there is also support for many other sectors, which shows that there is a growing interest in encouraging innovation and entrepreneurship in a wide range of industries.

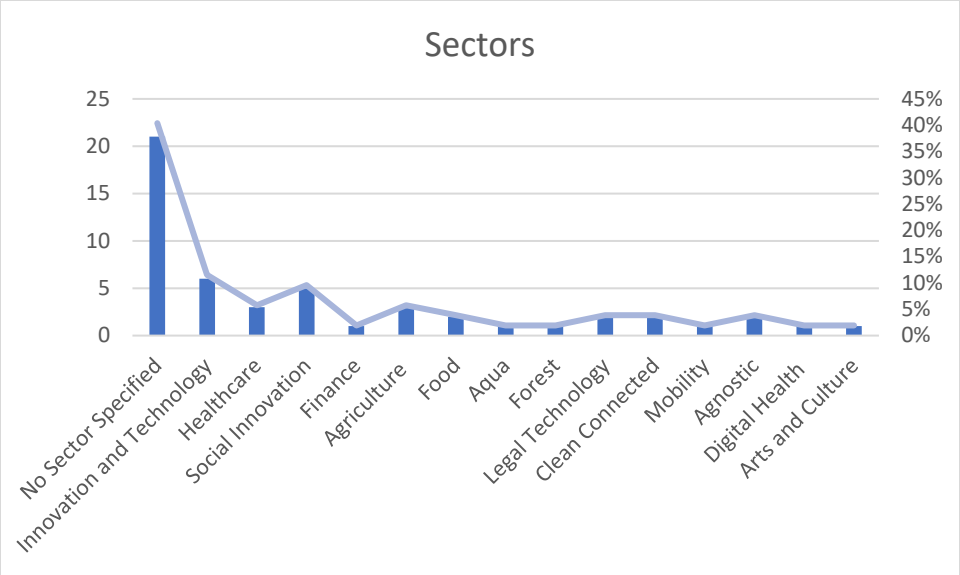

Figure 5 Sector Specialization of Incubator

4.6 Number of Applications Received in 2021

Figure 6 shows that 3124 new start-up applications were received by incubators in 2021. The x-axis indicates the range of applications received in increments of 50, and the y-axis indicates the number of incubators that received applications within each range.The highest bar on the graph, which represents the range of 1 to 50 applications, indicates that the majority of incubators received fewer than 50 applications. Three incubators contained between 51 and 100 applications, the next most frequent range.

Overall, the graph illustrates a wide range in the number of applications received by incubators in 2021, with some receiving less than 100 and others receiving more than 500.

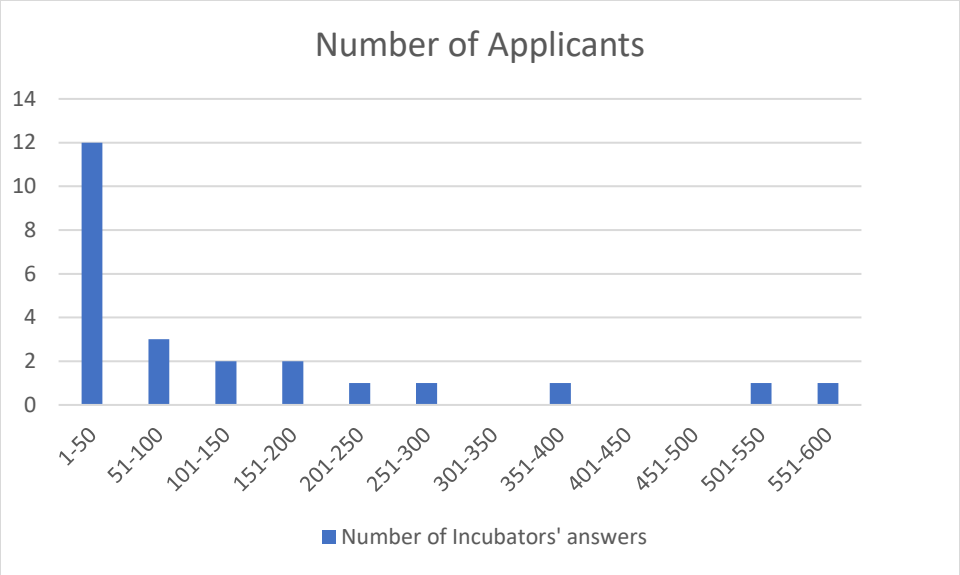

Figure 6 Number of Applications Received in 2021

4.7 New Start-up Incubated in 2021

Figure 7 demonstrates the distribution of the number of firms incubated in 2021 by the sample of incubators. The x-axis indicates the range of start-ups, while the y-axis indicates the number of incubators that reported incubating that range of start-ups. The majority of incubators (52%) incubated between zero and fifty businesses in 2021. A lesser number of incubators (16%) incubated between 101 and 200 start-ups, while the second largest group of incubators (28%) incubated between 51 and 100 start-ups. 4% of incubators reported having incubated between 151 and 250 firms.

The majority of incubators in the sample have a comparatively small number of start-ups in their portfolio, while only a few incubators have a larger number. This may be due to the fact that some incubators have a more selective application process, while others have limited resources to support a greater number of new ventures.

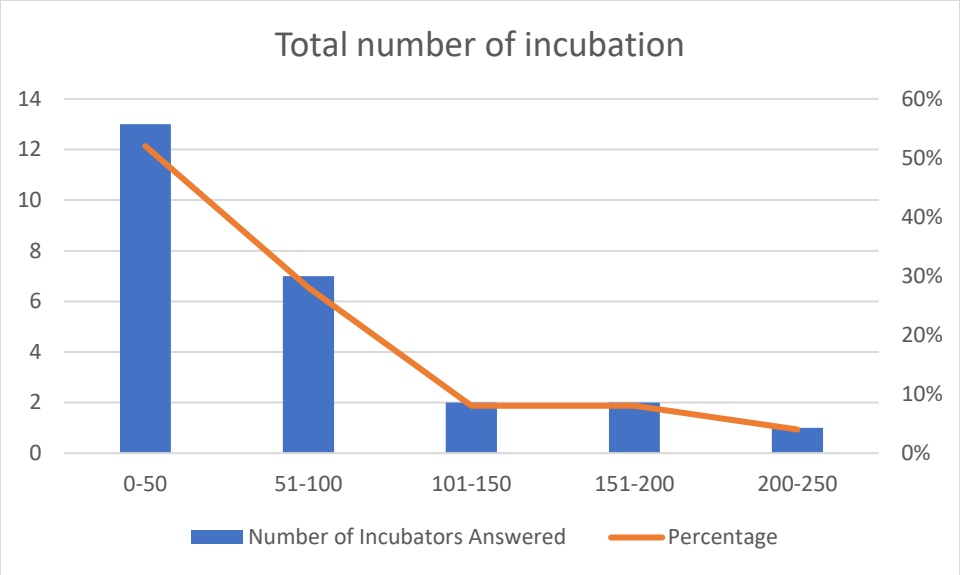

Figure 7 Start-ups incubated in 2021

4.8 Service Provided by Incubators

Figure 8 displays the various forms of assistance provided by incubators to newly incubated start-ups. The graph lists the following types of support: managerial support, business space, entrepreneurial and managerial teaching and mentoring, funding support, administrative, legal, and judicial services, support to intellectual property management, support to relationship management – networking, social impact evaluation services, teaching/consulting about business ethics and corporate social responsibility (CSR), and support to technology development and scouting.

The graph indicates the number of incubators that reported providing no support, some support, the majority of support, or all support. For instance, eleven incubators reported providing complete support for managerial support, whereas three incubators reported providing no support and three incubators reported providing some support.

The majority of incubators reported providing most or all of these types of support. On the other hand, incubators are less likely to provide all support for social impact evaluation services and teaching/consulting about business ethics and CSR.

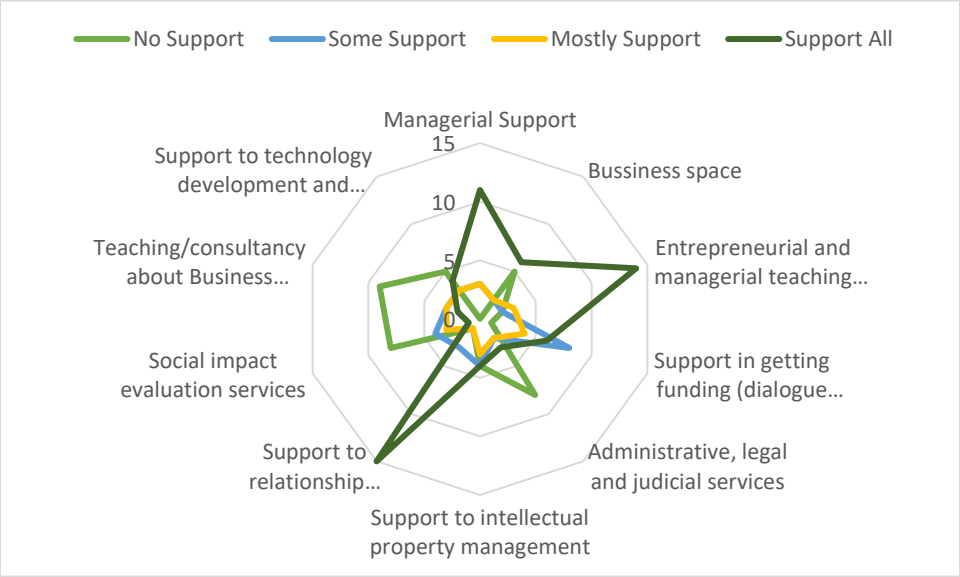

Figure 8 Service Provided by Incubator

4.9 Incubation Program Access Condition

Figures 9 and 10 show responses to questions relate to the fees and equity stakes incubators and accelerators charge entrepreneurial teams and organisations for admission to their programmes. These aspects are crucial to the incubation process because they determine the financial viability of the incubator and the potential financial returns for investors.

The first graph (Figure 9) represents that, of the 31 incubators and accelerators surveyed, four always charge a participation fee, 11 charge a fee only for certain incubation/accelerator programmes, and 16 never charge a fee. This indicates that the majority of incubators and accelerators do not require a participation charge for entry into their programmes. However, it is essential to note, that incubators and accelerators that charge a fee may do so to cover the costs of operating programmes such as infrastructure, resources and employees.

None of the 31 incubators and accelerators surveyed always ask for a percentage of equity in the businesses accessing their programmes, three ask for equity only for certain programmes, and the remaining 28 never ask for equity. This indicates that the vast majority of incubators and accelerators surveyed do not require entrepreneurial teams and organisations to provide equity

shares as a condition of admission to their programmes. This may be due to the fact that these incubators and accelerators set more priority on promoting the development of start-ups than on seeking financial returns through equity.

However, the issue of equity shares may be complex because it involves ownership and financial interests in the start-up companies. Some businesses may be refusing to give up equity, whereas others may view it as an effective strategy for obtaining funding and support. The fact that only three incubators and accelerators surveyed request equity shares for specific programmes suggests that this is a strategy used for programmes that offer specialised support and resources, such as investor access or technology development.

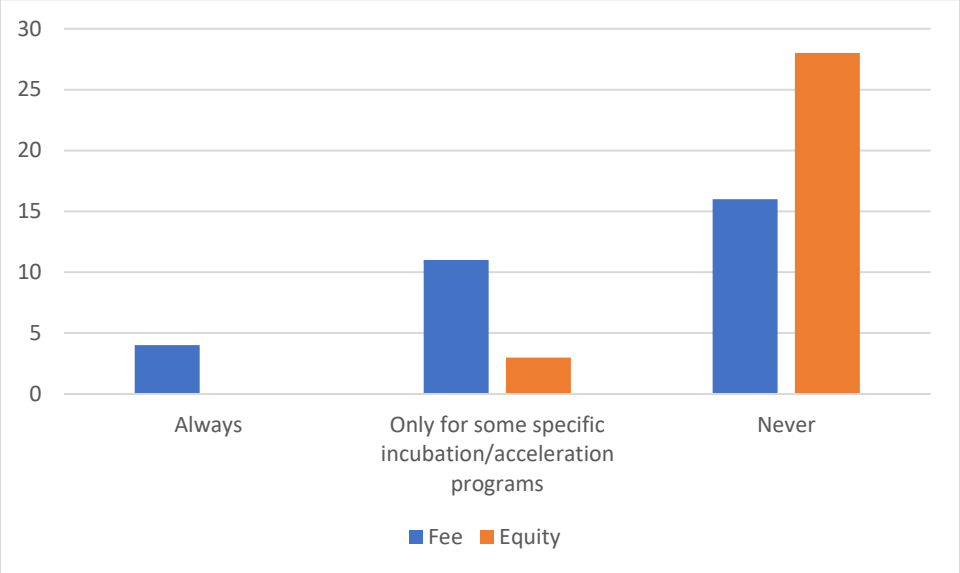

Figure 9 Incubation Program Access Condition

The third question queries whether incubators and accelerators obtained equity stakes in 2021-incubated businesses. Without the survey's actual data, it is challenging to provide a precise analysis. None of our responding incubators and accelerators received equity shares in 2021.

In general, the two graphs illustrate the various fee and equity share strategies employed by incubators and accelerators. While some may choose a fee-based model to fund their expenses, others prioritise providing support free of charge. Similarly, while some may request equity shares, others may view this as a potential barriers to the start-ups' success. Entrepreneurs and start-up

teams must evaluate the fees and equity stakes required by incubators and accelerators and select the programme that best meets their requirements and priorities.

4.10 Organizing Events for Non-Incubated Business

Incubators were asked whether they conducted events, workshops, or open seminars for non-incubated businesses in 2021. 18 of the 20 incubators surveyed responded "Yes", representing 90% of the sample, while only 2 incubators responded "No", representing 10%.This result indicates that in 2021, the majority of incubators organised events or activities targeted for non-incubated entities. These events could include workshops, seminars, or open days where entrepreneurs, investors, and other community members are invited to share their experiences and knowledge.

Organising events or activities for non-incubated entities can have multiple advantages for incubators. First, it can increase the brand and reputation of the incubator, which can attract potential incubatees or partners. It can also aid in establishing the incubator as a centre for innovation and entrepreneurship in the local ecosystem, thereby attracting the attention and support of stakeholders such as local government, investors, and other organisations. It can also facilitate collaboration and networking opportunities between ecosystem members, which can lead to the formation of new partnerships or business opportunities.

The high percentage of incubators that organised events or activities for non-incubated entities in 2021 is a positive indicator of the healthy ecosystem. It suggests that the incubators surveyed are focused not only on their own incubatees, but also on contributing to the entrepreneurial community and ecosystem at large.

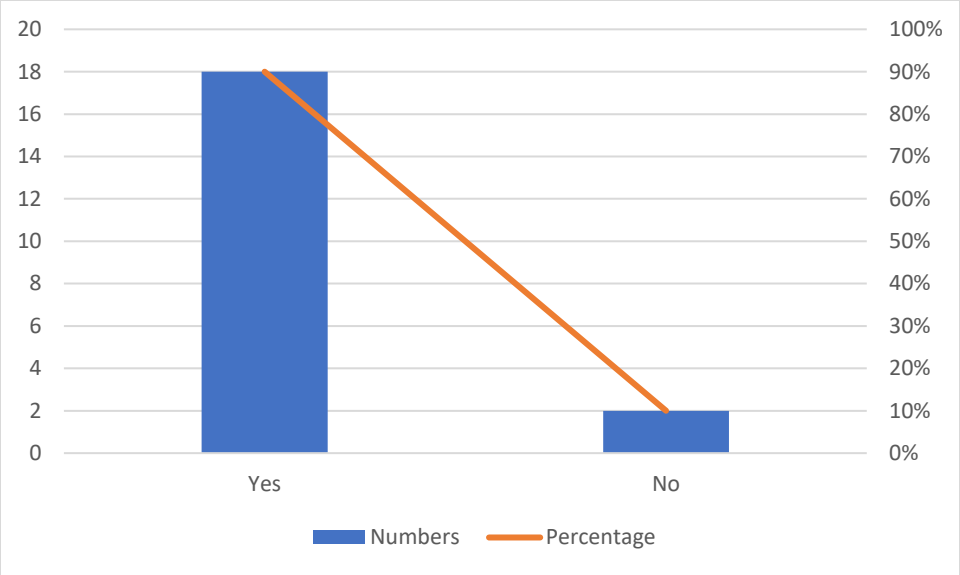

Figure 10 Organizing Events for Non-Incubated Business

4.11 Incubators Operational Cost

The given graph(figure 12)sows the percentage distribution of the incubator's operational expenses. According to the findings, 29% of the cost of the incubator is allocated to facility management and other general expenses, such as utilities, equipment, and stationery. The remaining 22% of the budget is allocated to entrepreneurial and technical support services, such as legal assistance, administrative and accounting services, marketing, intellectual property protection, and technology transfer.

Teaching and instruction for incubated/accelerated entrepreneurial teams and organisations accounts for 33% of the total cost of the incubator. This includes providing education, training, and mentoring on topics such as business development, marketing, and administration to the incubated start-ups. Other services provided to the incubated entities account for the remaining 16% of the incubator's expenses. Depending on the requirements of the incubated start-ups, these may include networking events, access to funding, incubator-run programmes, and additional services that may vary.

The operational cost distribution of the incubator emphasises the significance of providing education and training in addition to physical space and general support services for the incubated start-ups. By investing in these areas, incubators can assist start-ups in acquiring the necessary skills and knowledge for long-term success, which ultimately benefits both the start-ups and the incubator.

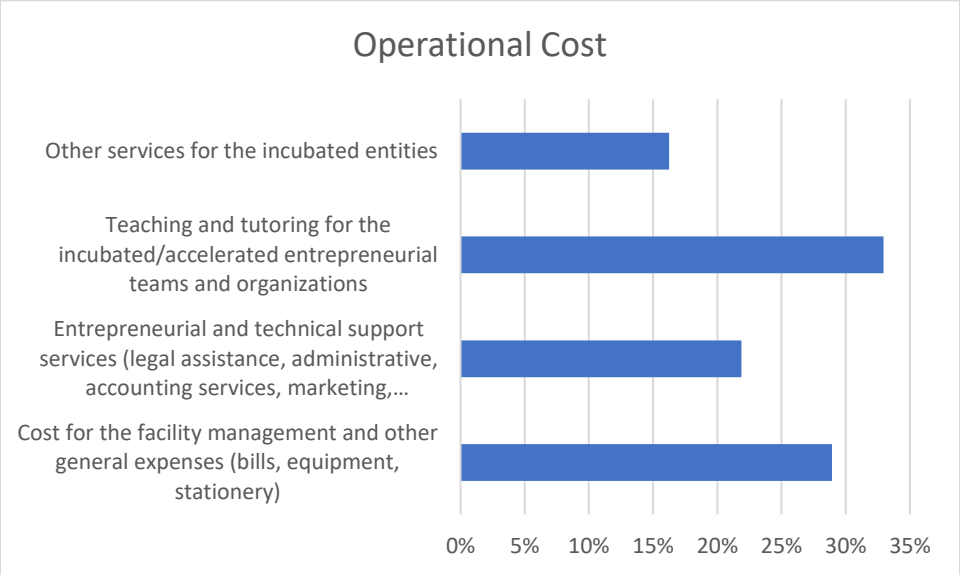

Figure 11 Incubators' operational costs

4.12 Incubators Revanue

The graph (figure 13) represents the percentage of incubators' revenue sources in 2021. Donations are the greatest source of revenue, accounting for 29% of total revenue. This indicates that incubators receive a substantial quantity of funding from donors interested in promoting the growth of new businesses and entrepreneurship. Subsidies are the second largest source of revenue, accounting for 24% of total revenue. This indicates that the incubators are supported financially by the government or other organisations.

Other revenue is the third greatest revenue source, accounting for 25% of total revenue. This category comprises income from sources besides rent, services, investments, subsidies, and donations. It may come from events, sponsorships, or other sources. The fact that rent accounts for only 3% of total revenue suggests that incubators may not rely significantly on renting out their

facilities.19% of total revenue is accounted for by services, which may include revenue from services provided to incubated companies or external clients. Investment represents 0% of total revenue, indicating that incubators do not generate income through investments in the enterprises they support.

Overall, the graph demonstrates that incubators generate income from a variety of sources, with donations, subsidies, and other income generating the most income.

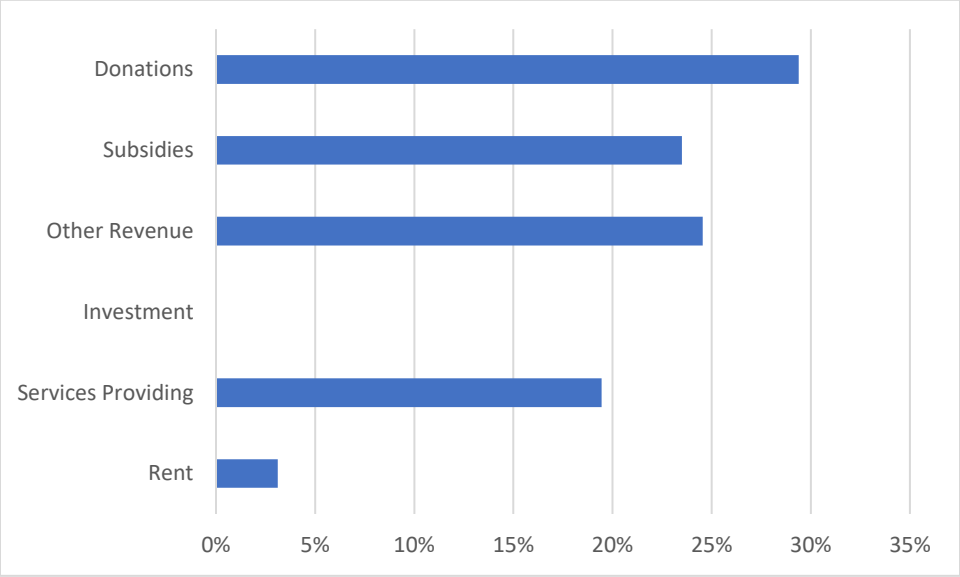

Figure 12 Incubators revenue

4.13 Types of organizations Incubated

Figure 14 indicates the percentage of various categories of organisations that the incubator incubated or accelerated in 2021. Seventy-six % of the organisations incubated or accelerated were for-profit businesses, according to the data. This indicates that the focus of the incubator is primarily on for-profit enterprises.

In addition, the graph reveals that 12% of the organisations were non-profits and 12% were hybrid businesses. This suggests that the incubator also offers assistance to non-profit organisations and hybrid businesses, however to a lesser extent than for-profit businesses. The data shows the significance of for-profit start-ups in the incubator's portfolio, as they represent the majority of

incubated/accelerated companies. Due to the potential for economic growth and employment creation, the incubator might give priority to supporting for-profit start-ups.

The presence of non-profit organisations and hybrid businesses in the portfolio of the incubator demonstrates a commitment to social impact and sustainability. These organisations may have a different set of priorities and goals than for-profit businesses, and the incubator's assistance may be oriented towards assisting them in achieving their social and environmental objectives.

Overall, the graph demonstrates that the incubator's portfolio of supported organisations is diverse, with a predominant emphasis on for-profit businesses.

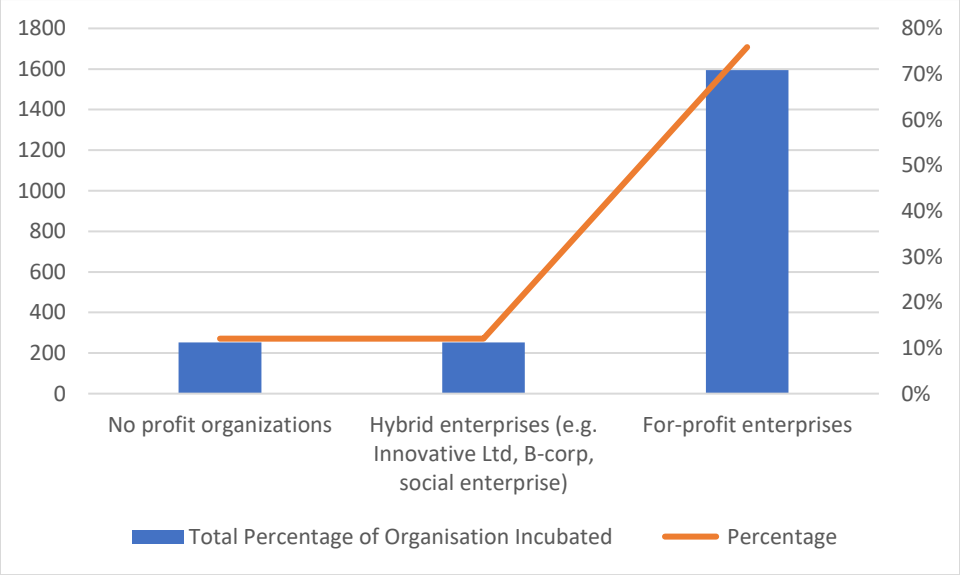

Figure 13 Types of organizations incubated

4.14 Social impact

Figure 15 indicates the percentage of entrepreneurial teams and organisations incubated or accelerated by various categories of incubators in 2021 that delivered significant social impact solutions. Health and wellness (sport is included), poverty and social exclusion, community development, culture, art, and craft, environment and animal protection (agriculture and farming are included), sustainable finance and consumer protection, job placement, job creation, gender equality, education, social tourism and responsible consumption, peace and justice, and services

for social enterprises and non-profit organisations are taken into account when classifying incubators.

According to Sansone et al.(2020) business incubators primarily focus on supporting startups without a specific emphasis on achieving a positive social impact. On the other hand, mixed incubators extend their support to a range of startups, typically from 1 to 50%, that aim to introduce a positive social impact. Contrarily, social incubators primarily support startups, constituting more than 50%, that are dedicated to achieving a positive social impact.

Twenty-one per cent of the total number of entrepreneurial teams and organisations delivering significant social impact solutions were incubated or accelerated by Social Incubators, 39% by Mixed Incubators, and 39% by Business Incubators, as illustrated by the graph. This suggests that a significant number of incubators now recognise the significance of supporting start-ups with a social impact objective.In this context, the function of Social Incubators is most important. Six of the total number of entrepreneurial teams and organisations delivering significant social impact solutions were incubated or accelerated by Social Incubators. This is a minor percentage of the total, but it is significant because it demonstrates that there are incubators committed only to supporting start-ups with a social impact objective. In contrast, eleven of the total number of entrepreneurial teams and organisations delivering significant social impact solutions were incubated or accelerated by Mixed Incubators. This demonstrates that the majority of incubators are supporting start-ups with a social impact objective, although their commitment may not be as strong as that of Social Incubators. In contrast, 11 of the total number of entrepreneurial teams and organisations delivering significant social impact solutions were incubated or accelerated by business incubators. This indicates that a significant number of incubators still do not support start-ups with a social impact objective, which is concerning given the growing recognition of social entrepreneurship's significance.

In conclusion, Figure 15 shows the percentage of entrepreneurial teams and organisations incubated or accelerated by various kinds of incubators in 2021 that deliver significant social impact solutions. While the results demonstrate a growing awareness of the significance of social entrepreneurship, they also demonstrate the need for more incubators to support start-ups with a social impact objective. Social Incubators set the way in this regard, but more must be done to foster social innovation and entrepreneurship by creating a supportive environment.

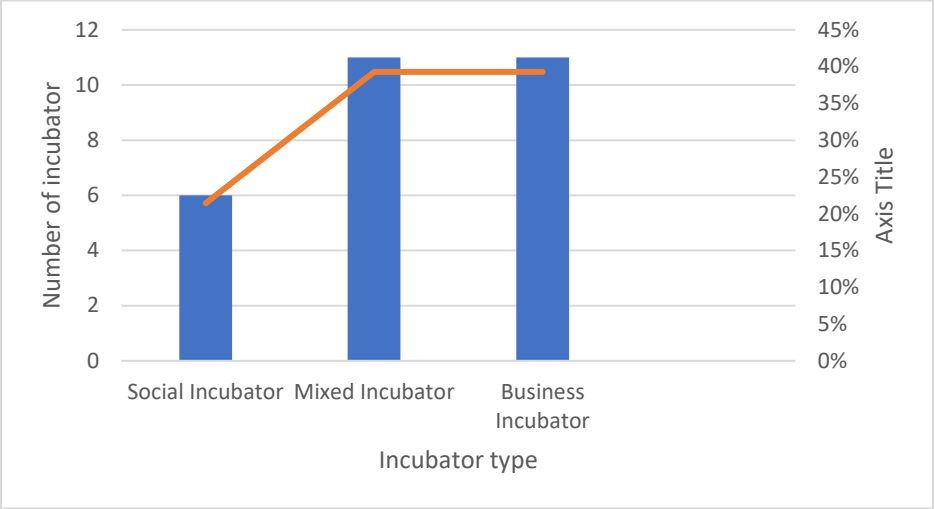

Figure 14 Incubators with social impact

4.15 Specific service for social impact solutions

Figure 22 represents the percentage of incubators that offer specific services for social impact solutions for their participants in 2021. The data shows that 41% of incubators in Canada provide such services, while 59% do not.

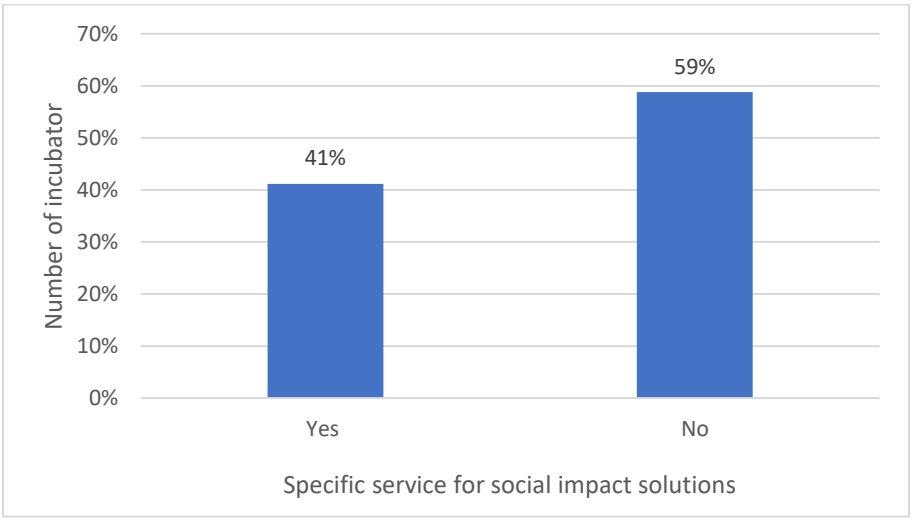

Figure 15 Specific service for social impact solutions

4.16 Difficulties in support social impact solutions

Figure 23 shows the different kinds of difficulties that incubators faced in supporting entrepreneurial teams and organizations with significant social impact solutions in Canada in 2021. According to the graph, 10% of incubators faced difficulties to support their participants with proper social solution due to lower expected financial returns. On other hand, 20% of incubators found it harder to obtain financial funding for social impact start-ups.

Another common problem, which was mentioned by 25% of incubators, was having different goals and languages. However 15% of incubators reported no difficulties in supporting participants with specific social impact solutions and 30% of incubators reported other difficulties which is not mentioned in the listed options.

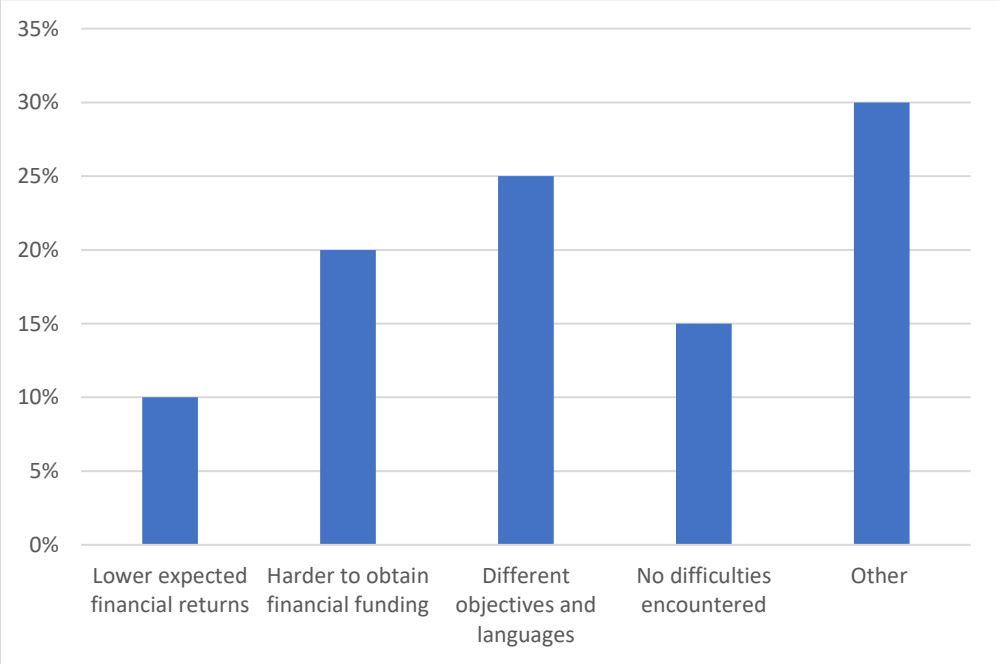

Figure 16 Difficulties in support social impact solutions

4.17 Activities Other than Incubation

The percentage of incubators engaged in activities other than incubation and acceleration is shown in Figure 16. Seventy-four per cent of the incubators surveyed participate in additional activities, while 26% do not.

The majority of incubators engage in activities beyond incubation and acceleration, as indicated by the data represented in this graph. This could be due to a variety of factors, such as a need to diversify revenue streams or a desire to provide entrepreneurs with more comprehensive assistance. It is important to note that the 26% of incubators that do not engage in other activities may still provide entrepreneurs and fledgling companies with valuable services. The decision to focus solely on incubation and acceleration may reflect a strategic decision to optimise resources or to specialise in a particular area.

Overall, this graph indicates that a growing number of incubators are expanding beyond their traditional roles to offer an increased number of services to entrepreneurs and start-up companies. As the needs of entrepreneurs continue to change, it is probable that the function of incubators will also continue to evolve, with many incubators engaging in activities beyond incubation and acceleration.

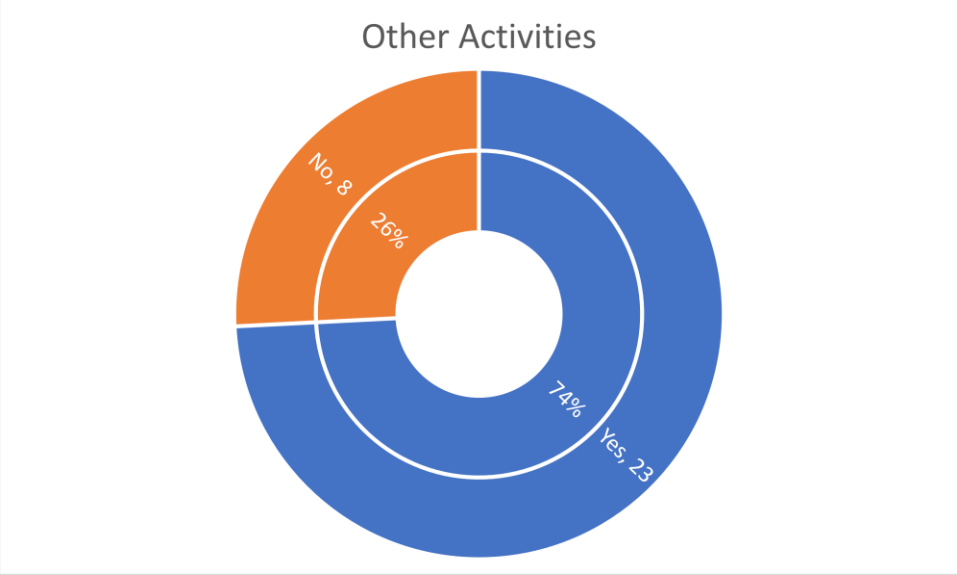

Figure 17 Activities other than incubation

4.18 Client Selection Methods

Figure 17 represents the methods used for selecting entrepreneurial teams and organizations interested in incubation/acceleration programs. Thirty-seven per cent of incubators indicated that they follow an "Open door" policy, where applications are accepted throughout the year without any specific selection process or requirements.

On the other hand, 43% of the incubators stated that they follow a structured approach by conducting "One or more calls/competitions each year." At the same time, 20% of the incubators mentioned that they utilize a combination of both approaches in the selection process.

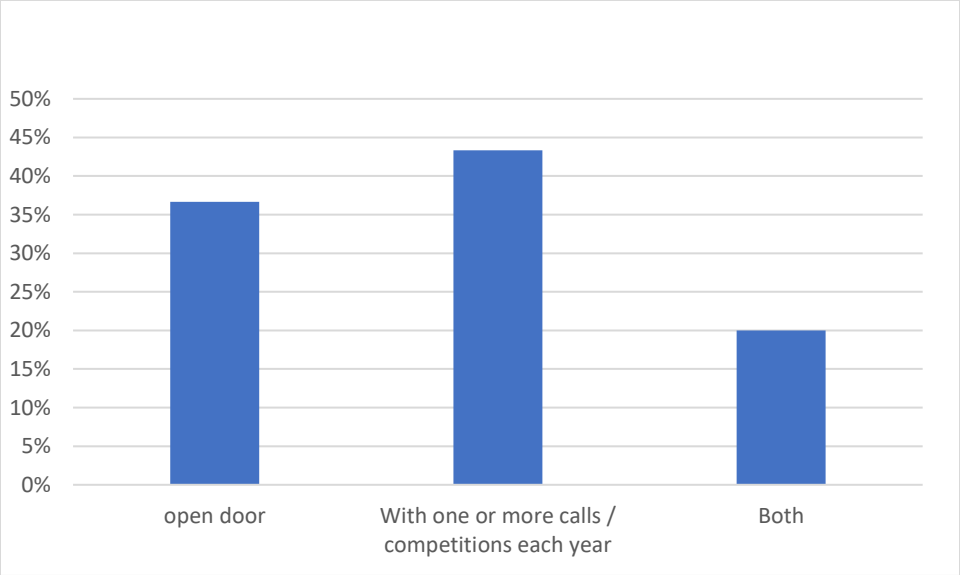

Figure 18 Selection Type

4.19 Incubation Time

Figure 18 illustrates the distribution of incubation periods offered by various incubators to entrepreneurial teams and organisations. The incubation period has been divided into six categories, ranging from less than three months to more than five years.

The graph indicates that 29% of incubators provide incubation services for 1 to 3 years, the most percentage among all categories. The next largest category is 'Other,' which accounts for 29% of

the total, indicating that some incubators have diverse incubation time policies.16% of incubators offer incubation services from six to twelve months, while 13% offer services from three to six months. Ten per cent of the incubators offer services for three to five years, while only 3% offer services for less than three months.

This graph indicates that the majority of incubators provide services for a period of one to three years, which may be sufficient time for start-ups to establish their enterprises. On the other hand, a large number of incubators have varying policies regarding the incubation period, indicating that the duration of incubation can depend on a variety of factors, including the nature of the business, its goals and objectives, among others.

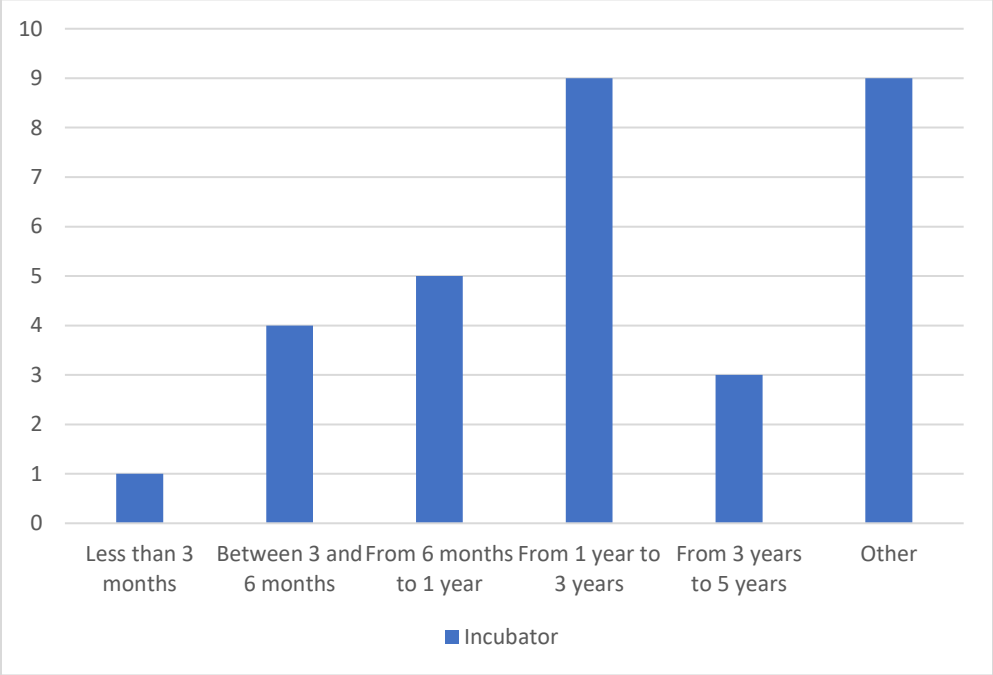

Figure 19 Incubation Time

4.20 Number of collaborations with investors

Figure 19 illustrates the distribution of collaborations between incubators and investors in 2021. The x-axis indicates the number of collaborations established whereas the y-axis indicates the number of incubators that established these collaborations.

In 2021, according to the graph, 10 incubators did not partner with any investors. One incubator collaborated with a single investor, whereas another incubator collaborated with two investors. One incubator collaborated with investors on four, fifteen, and nineteen respectively.

In 2021, the majority of incubators did not establish any sort of official agreements with investors, while a minority of incubators founded multiple partnerships. This data suggests there may be capacity for incubators and investors to collaborate more to support the growth and success of new start-ups.

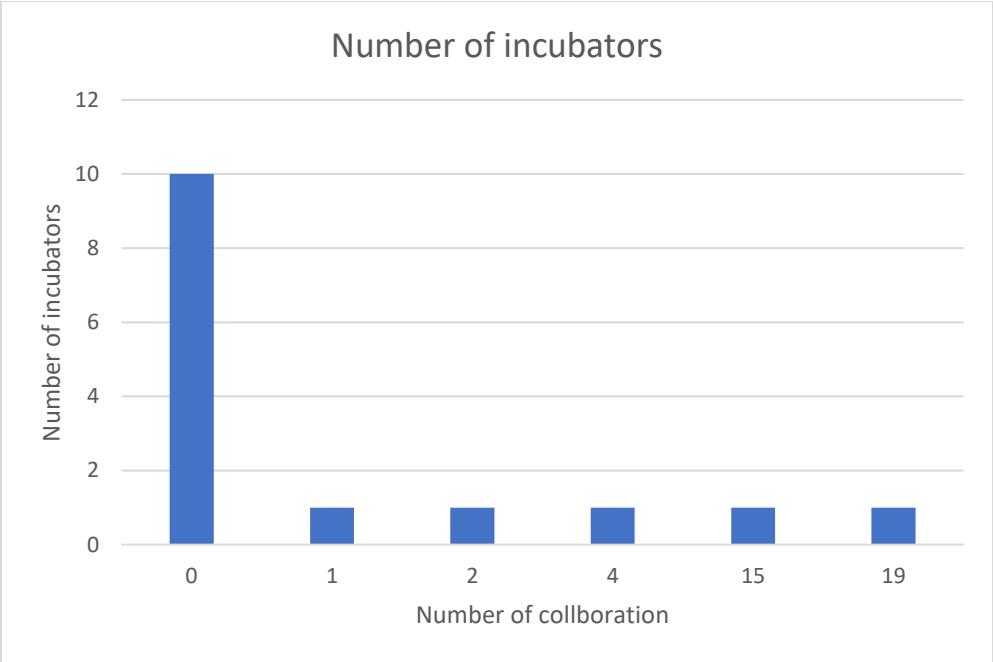

Figure 20 Number of collaborations with investors

4.21 Number of collaborations with corporations

The Figure 20 shows the number of official collaborations between incubators and corporations. The x-axis represents the number of collaborations formed by each incubator, whereas the y-axis represents the number of incubators that made those collaborations.

According to the graph, five incubators did not collaborate with corporations in 2021. One incubator collaborated with one corporation, while two incubators collaborated with two and four corporations, respectively. Three incubators made five partnerships, while two incubators made

eight partnerships. Finally, one incubator established fifteen partnerships with corporations. In 2021, the majority of incubators did not engage in collaboration with corporations.

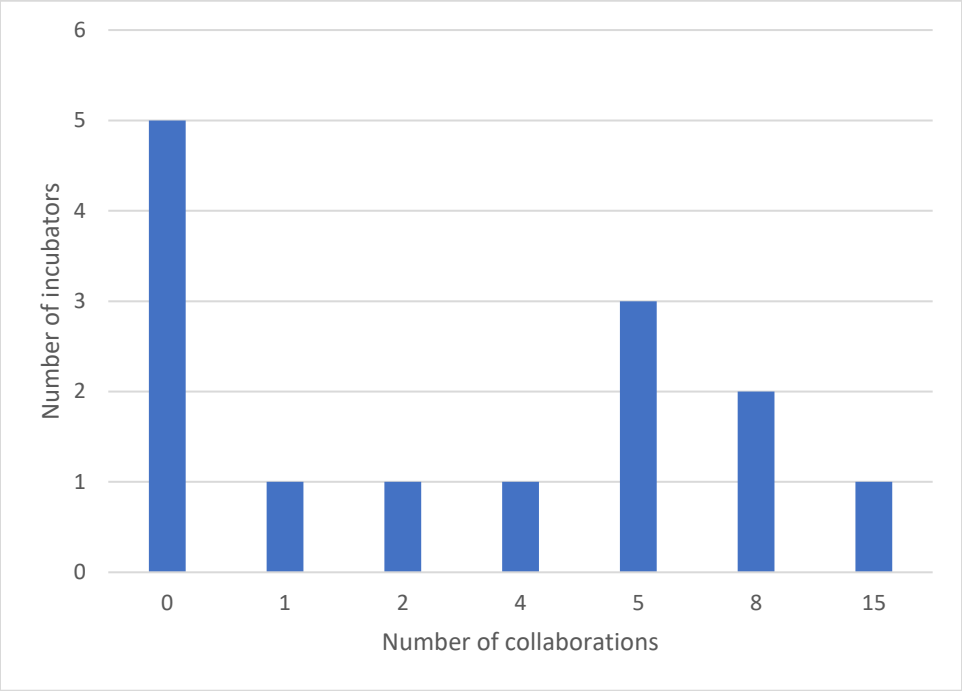

Figure 21 Number of collaborations with corporations

4.22 Number of appearances in press

Figure 21 shows the number of instances with which incubators were mentioned in the news over the past year. The x-axis represents the number of press appearances, whereas the y-axis represents the number of incubators that made those appearances.

According to the graph, four incubators appeared in the press three times in the past year. Three incubators made four press appearances, while two incubators made five press appearances. Eight press appearances were made by one incubator, ten by another incubator, and twenty by an incubator.

The data indicate that some incubators had a high level of press coverage over the past year, while others had fewer press appearances. This data suggests that some incubators or ventures may have

been more successful at attracting media attention or may have had more newsworthy events to report.

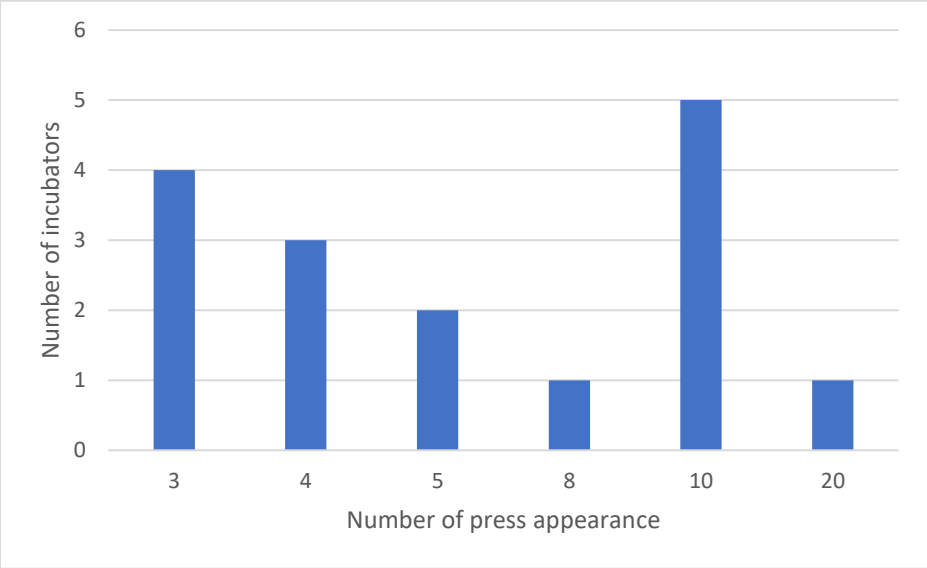

Figure 22 Number of appearances in press

4.23 Changes after COVID-19 Pandemic

Figure 24 shows the results of the question towards incubators whether their business model changed since the COVID-19 pandemic. Out of the total respondents, 68% said that their business model has not changed, while 32% said that it has.

For the businesses that did make changes, they were again asked whether those changes are temporary or "sticky". Sticky changes are those that are expected to continue even after the pandemic ends. 67% of the businesses that made changes said that those changes were sticky, meaning they expect the changes to continue even after the pandemic is over. From our research questions we found that some of the incubators are currently working in virtual spaces.

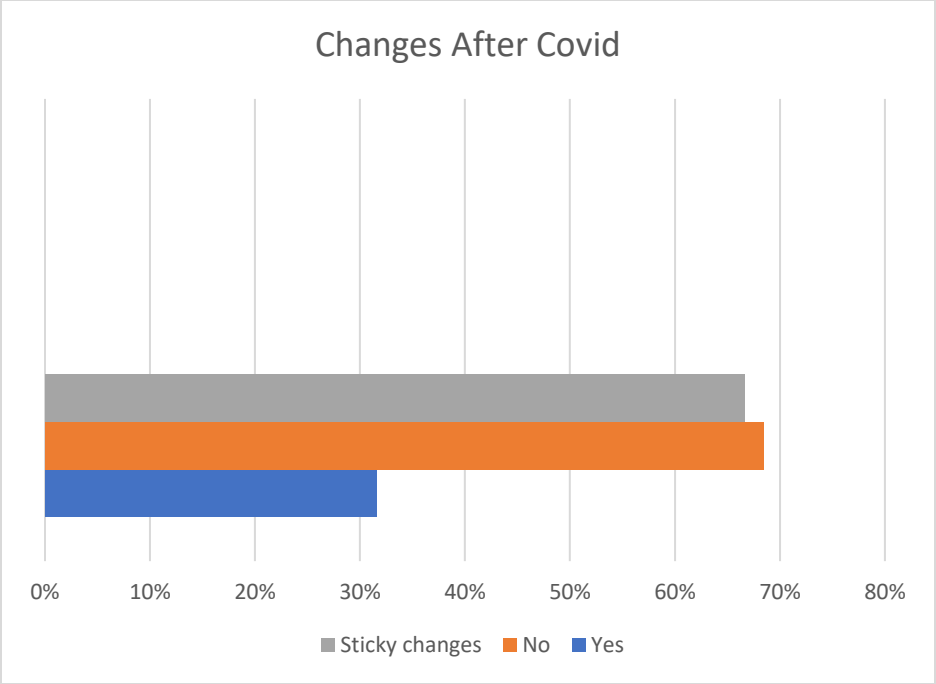

Figure 23 Changes after Covid Pandemic

5. Conclusion

The main objective of this thesis research was to get a detailed idea about the impact of incubators and accelerators inside Canada in 2021. This investigation was mainly done using quantitative and graphical analysis of various data and factors related to the topic mainly done through the survey. From our findings it's clear that incubators and accelerators are playing a crucial role in the development of Canadian entrepreneurial ecosystem.

5.1 Impact of Incubators and Accelerators in Canada

From our findings, it is clear that most English-speaking incubators in Canada are in the Ontario and British Columbia regions, primarily in the country's economic and educational hubs. This underscores the crucial role that incubators play in the growth of a country. The operational cost distribution of the incubator emphasises the significance of providing education and training in addition to physical space and general support services for the incubated start-ups. By investing in these areas, incubators can assist start-ups in acquiring the necessary skills and knowledge for long-term success, which ultimately benefits both the start-ups and the incubator. Many incubators in Canada are comparatively small, occupying less than 2500 square metres, according to the data. This may be because many incubators are designed to support early-stage start-ups that do not require expansive accommodations.

While analysing the sector specification the data suggests that innovation and technology is the most common sector for incubators and accelerators in Canada, which is consistent with the country's reputation for technological innovation. But there is also support for a wide range of other sectors, which shows that there is a growing interest in encouraging innovation and entrepreneurship in a wide range of industries In the case of social impact, more incubators to support start-ups with a social impact objective. This is crucial not only for promoting social entrepreneurship, but also for addressing some of the most significant social and environmental issues in modern society. Incubators play an important role in this regard, not only by providing financial and technical assistance to social start-ups, but also by supporting social innovation and entrepreneurship by creating an ideal atmosphere.

Our research shows that, 41% of incubators in Canada offer specific social impact services to their participants which indicates that there is a increasing interest and focus on supporting social entrepreneurship and addressing social and environmental issues inside Canada. However, the fact that the majority of incubators do not offer these services shows that they have to improve still in this area which may require additional resources and expertise, which may be a challenge for some incubators.

The COVID-19 pandemic made a significant impact on the working of incubators inside Canada. From our findings 30% of the incubators were adapt to the changing circumstances brought on by the pandemic, including lockdowns, restrictions, and changes in consumer behavior. These may push them to adjust their business model in order to survive or thrive in the new environment. This might involve changes in the products or services offered, changes to the way the business operate from normal workspace to a virtual one.

5.2 Limitations of this Study and Implications for Future Research

One of the limitations of our research is that all our findings were based on an online survey. As a result, there is a possibility that some participants may have provided inaccurate or false responses, or there may be chances of human errors in the data. Additionnally, we received email responses including one from a significant social innovation centre, that centres were challenged to collect this level of detailed impact metrics. This in itself is a problem for accelerators and incubators, because it is difficult to demonstrate value without impact metrics. Entrepreneurs are a reluctant group and research on entrepreneurs often shows low response rate. Similarly, we found it difficult to encourage immediate participant responses and we had to do four rounds of data collection. Another limitation of our research is that the financial and revenue data provided by the participants may not be entirely reliable. We had to rely on self-reported data from the participants, and there is a possibility that some participants may have provided inaccurate or incomplete information.

For future research, it is suggested that researchers explore the industry-specified incubators research or a comparison between two industries or two different type of incubators. Researchers also can do a comparison of research of incubators in United States and Canada or a study of northern American incubators. Future researchers can also explore multiple countries to know how

post pandemic conditions affect the incubators in various geometric locations. Finally in future research, it is advisable to conduct bilingual surveys or target French-speaking provinces to ensure a more inclusive representation of perspectives across Canada. This could involve translating the survey into French and actively reaching out to participants in Quebec and other French-speaking regions to gather a comprehensive dataset.

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Annex A

Incubators and accelerators impact in Canada

- 2021 Questionnaire

Instructions: **For all the answers, consider the data of 2021**. If your organization undertakes other activities, please refer only to the incubation/acceleration ones.

General information

What is the business name of your incubator/accelerator?	
Is it a campus or community-based incubator?	
Where is the Incubator located? (City & Province)	
In your organization, are there activities other than the incubation/acceleration[1] one?	YES/NO
In which year was the incubator/accelerator founded?	
What was the average number of employees (FTE=Full Time Equivalent) in 2019? (in the whole questionnaire, refer only to incubation/acceleration activities)	
How many square meters are available for the incubation/acceleration activities?	

Enterprises

In 2021, how did you select the entrepreneurial teams[2] and the organizations[3] among those interested in your incubation/acceleration services? (multiple choice)		
a	**Open door** (candidates can apply at every time)	
b	**With one or more calls/competitions each year** (candidates can apply for a limited period of time)	

On average, for how long can entrepreneurial teams and organizations use your incubation/acceleration services?		
a	Less than 3 months	
b	Between 3 and 6 months	
c	From 6 months to 1 year	
d	From 1 year to 3 years	
e	From 3 years to 5 years	

[1] For instance, a Scientific Park should answer "YES" if both enterprise and research centres are hosted within the park.
[2] The term "entrepreneurial team" refers to a group of people with any entrepreneurial idea and/or project, but without a registered business.
[3] The term "organizations" refers to businesses incorporated as profit, hybrid and no-profit corporations.

f	Else:	

Are your services specialized in a specific sector (e.g. sport, cleantech, aerospace, digital)? If, yes in which sector?	NO	YES (specify in which sector): _____

Do you ask for a participation fee to access the incubation/acceleration programs?	• Always • Only for some specific incubation/acceleration programs • Never
Do you ask for a percentage of the equity in the businesses accessing the incubation/acceleration programs?	• Always • Only for some specific incubation/acceleration programs • Never

In 2021, how many candidates have applied for incubation/acceleration?	
In 2021, how many entrepreneurial teams and organizations did you incubate/accelerate? (consider both all the already existing entrepreneurial teams and organizations which you kept supporting in 2019 and the new entrances of 2019)	
Among the entrepreneurial teams incubated/accelerated in 2019, how many had not incorporated an organization yet? (i.e. how many did not register a business by the end of 2019)	

In 2021, for each of the following types, how many (in percentage) incorporated organizations did you incubate/accelerate? (the total must be 100)		
a	**No profit organizations**	
b	**Hybrid enterprises** (e.g. Innovative Ltd, B-corp, social enterprise)[4]	
c	**For-profit enterprises**	

In 2021, did you support entrepreneurial teams or organizations with significant social impact[5]?	Yes	No

[4] The term "hybrid enterprise" refers to all the for-profit enterprises which channel a portion of their profits to social purposes or which have *explicitly* stated social and/or environmental purposes among their objectives.

[5] These are organizations that introduce **social innovation**, meaning "a new solution to a social problem which is more effective, efficient, sustainable or better than existing solutions and for which the created value is mainly accrued to the society as a whole rather than to private entities." They can be for-profit, no-profit or hybrid enterprises. For instance, a for-profit enterprise can be considered having a significant positive social impact for

SECTION ONLY FOR THOSE SUPPORTING entrepreneurial teams and organizations delivering significant social impact solutions

In 2021, how many entrepreneurial teams and organizations delivering significant social impact solutions did you incubate/accelerate? (consider both all the already existing entrepreneurial teams and organizations with a significant social impact which you kept supporting in 2021 and the new entrances of 2021)	

Do you adopt any metrics or criteria for evaluating the potential of social impact solutions delivered by the incubated entrepreneurial teams and organizations?	Yes	No

Among the entrepreneurial teams and organizations incubated/accelerated in 2021, in which sectors do the ones with significant social impact solutions operate? - Please, state the **number** of entrepreneurial teams and organizations for each sector: some of them can be associated to more than one sector		
a	**Health and wellness (sport included)**	
b	**Poverty and social exclusion**	
c	**Community development**	
d	**Culture, art and craft**	
e	**Environment and animal protection (agriculture and farming included)**	
f	**Sustainable finance and consumer protection**	
g	**Job placement, job creation, gender equality**	
h	**Education**	
i	**Social tourism and responsible consumption**	
l	**Peace and justice**	
m	**Services for social enterprises and no-profit organizations**	

Do you offer specific services for entrepreneurial teams and organizations delivering significant social impact solutions? (e.g. ad hoc financial instruments)	Yes	No

Which kind of difficulties did you encounter in supporting entrepreneurial teams and organizations with significant social impact solutions? (multiple choices)		
a	**Lower expected financial returns**	
b	**Harder to obtain financial funding**	
c	**Different objectives and languages**	
d	**No difficulties encountered**	
e	**Else**	

SECTION ONLY FOR THOSE NOT SUPPORTING entrepreneurial teams and organizations delivering significant social impact solutions

producing and merchandizing products for disadvantaged categories. Moreover, a for-profit enterprise can be considered having a positive environmental impact for introducing cleaner technologies than the existing ones.

In 2021, did you receive any incubation candidacy from entrepreneurial teams and organizations delivering social impact solutions?	yes	no

If the answer was “yes”

Why did you decide NOT to support entrepreneurial teams and organizations delivering social impact solutions? (Multiple choices)			
a	**Lower expected financial returns**		
b	**Harder to obtain financial funding**		
c	**Different objectives and languages**		
d	**Not in line with the incubator’s mission**		
e	**Else**		

If the answer was “no”

Having candidates, would you support entrepreneurial teams and organizations delivering social impact solutions?	Yes	No

If the answer was no (multiple choices)

Why would you not support entrepreneurial teams and organizations delivering social impact solutions? (multiple choices)			
a	**Lower expected financial returns**		
b	**Harder to obtain financial funding**		
c	**Different objectives and languages**		
d	**Not in line with the incubator mission**		
e	**Else**		

Financial data

How would you divide (in percentage terms) all the incubator's operative costs? (the total must be 100) **Please, personnel costs should be proportionally allocated with the commitment in the following activities:**		
	Cost item	**%**
a	**Cost for the facility management and other general expenses** (bills, equipment, stationery)	
b	**Entrepreneurial and technical support services** (legal assistance, administrative, accounting services, marketing, intellectual property, technology transfer)	
c	**Teaching and tutoring for the incubated/accelerated entrepreneurial teams and organizations**	
d	**Other services for the incubated entities**	

In percentage, how much revenue does each of the following items generate? (the total must be 100)		
	Revenue item	**%**
a	**Rent**	
b	**Revenue deriving from services provided to the incubated entities**	
c	**Revenue deriving from the incubated enterprises' investments** (e.g. equity percentage as dividend or from selling the shares)	
d	**Other revenue** (e.g. consulting contracts)	
e	**Subsidies and national/international awards** (co-financing included)	
f	**Donations**	

Financing and Community

In 2021, how much did you totally obtain as financing from the incubated/accelerated organizations? (considering equity investments, grants, public awards, etc.) - Please, insert the number in £.		
Did you obtain equity shares from the enterprises incubated in 2021?	yes	No
If yes (multiple choice)		
In exchange of investments in equity?	yes	No
In exchange for performances and services (work for equity)?	yes	No
Did you organize events/workshops/open seminars for non-incubated entities?	yes	No
Number of collaborations with investors by formal agreement		
Number of collaborations with corporations by formal agreement		
Number of times the incubator and/or incubated teams and start-ups appeared in the press over the past year		

Activities

Do you (directly or indirectly) offer the following services to the incubated/accelerated entrepreneurial teams and organizations?					
		No	Only to some of the incubated teams/organizations	To most of the incubated teams/organizations	To all the incubated teams/organizations
a	**Managerial support** (e.g. business plan drafting, company incorporation, business model development, mentoring, marketing and sales support, internationalization)				
b	**Business spaces** (shared services included)				
c	**Entrepreneurial and managerial teaching and mentoring**				
d	**Support in getting funding** (dialogue with investors included)				
e	**Administrative, legal and judicial services**				
f	**Support to intellectual property management**				
g	**Support to relationship management – networking** (e.g. research centers, universities, public entities, enterprises, and other incubated organizations)				
h	**Support to technology development and scouting**				
i	**Social impact evaluation services**				
l	**Teaching/consultancy about Business ethics and Corporate Social Responsibility (CSR)**				