BUSINESS INCUBATION PROCESS FOR DESIGN START-UPS:

CASE STUDIES ON GOVERNMENT-BASED AND

UNIVERSITY-BASED BUSINESS INCUBATORS IN HONG KONG

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Business Incubation Process for Design Start-ups: Case Studies on Government-based and University-based Business Incubators in Hong Kong

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(Tiffany W.M. FONG)

ABSTRACT

The importance of entrepreneurship in the past 20 years has been recognized as an economic driver to the first-world countries' Gross Domestic Profit (GDP) growth index. Many entrepreneurship programmes, including business incubators, accelerators, innovation hubs and co-working spaces were established in the past 20 years. Business incubator is one of the entrepreneurship programmes that was well established in the past 50 years worldwide. It provided hardware and software, including infrastructure, business services and funding support to entrepreneurs. Most of these business incubators mainly focused on technology start-ups. Considering the incubation process and service supplied by the incubator, previous studies were limited to the incubator's perspective and that of the incubatee was rarely included. This was the research gap to be filled by this study.

In recent years, cultural and creative industries have played a crucial role in the economies of many countries, and so their entrepreneurship became a new topic in the field. However, there have been few studies on design and creative entrepreneurship. This is the main research gap identified in this research, specifically, 'there are no framework of business incubation process for design start-ups'.

Based on the above research gaps, one main research question was defined: 'What is the business incubation process for design start-ups?' Following on from this, three sub-questions were developed. These sub-questions were: (SQ1):'What are the incubator's expectations and perspectives of their design incubatees and the programmes'; (SQ2):'What are the design incubatees' expectations and perspectives on their business incubators in terms of services and support'; and (SQ3): 'What are the key elements of business incubation process for design start-ups'. The first two sub-questions identify the differences of incubators and incubatees' perspectives in the business incubation process. And the third sub-question targets on the key themes of the business incubation process for design start-ups.

Based on these research questions, the three objectives of this study were defined. These were (1) to establish an understanding of government-based and university-based incubation process for design start-ups; (2) to explore the business incubation process for design start-

ups from two perspectives, these being, incubator and incubatees; and (3) to develop a framework of incubating design start-ups by incubator with a process-based view.

To explore the answers to the research questions and achieve the objectives, a qualitative approach comprising multiple case studies was selected and applied in this research. Data from two perspectives, incubator and incubatee were collected to fill the previous research gap of the limited perspective based on incubator study. Two cases of business incubators in Hong Kong were explored. They were: Hong Kong Design Incubation Programme by Hong Kong Design Centre as a government-based incubator and HKPolyU Micro Fund as university-based incubator. To obtain a rich description of the cases, data were collected through multiple sources, including semi-structured interviews, site visits and documents. In the semi-structured interviews, representatives of both incubators and incubatees were interviewed. A total of thirty-two semi-structured interviews were conducted. The interviews were audio recorded and transcribed. Three incubation centres were visited. Data triangulation was applied to explore the individuals' perspectives in a business incubation process. All the collected data were sorted in a dataset.

According to the literature review, six categories of the business incubation process were reported as the result of first code. It supplied a frame to guide the data collection and analysis. Since it was generated based on the previous studies, it also represented the incubator's perspectives and non-design start-ups. Based on the first codes, the researcher highlighted the quotations in data set and the transcriptions by using the software, ATLAS.ti. The second codes were generated as the result of the analysis. Through comparing second code of incubator's perspective in the two cases with the first code, the characteristics of business incubation for design start-up were reported. Through comparing incubatee's perspective of the second codes in the two cases, the opinions of business process from incubatees were identified. The second code results from the two perspectives in the two cases were further synthesized via cross-case analysis to obtain the first themes of the business incubation process. After comparing the first themes with the literature review, the final themes were reported. To validate the results, these findings were reviewed by a group of experts from academia and industry in the fields of business incubation.

Overall, there are four main findings reported in this research. (1) six categories of business incubation process as the summary of existing studies on business incubation process; (2) the views of business incubation process from the incubatees; (3) the characteristics of business incubation process for design start-ups; and (4) the framework of the process of the identified final themes.

Firstly, the six categories of BI process were reported as the first code from literature review in Chapter Two. The six categories were 1) selection criteria, 2) infrastructure, 3) finance support, 4) business service support, 5) networking, and 6) entrepreneurship training. These were limited to non-design start-ups and were only from the perspective of the incubator. The six categories supplied a framework for this research and were applied as an analytical frame of within-case and cross-case analysis.

Secondly, the incubatees' perspectives of the BI process were explored through comparing the second codes of the incubatees' perspectives in the two cases with the first code of six categories from the literature review. A total of 30 second codes were obtained from the incubatees' perspectives, of which 17 codes were reported from Case A and 13 from Case B. The results of the comparison were reported in three groups, 1) two new elements, which were not in the scope of the first code from the incubator's perspective; 2) 15 new content of existing first code from the perspective of the incubator; and, 3) two same contents of existing first code.

Thirdly, the characteristics of the BI process for design start-ups were reported based on the comparison between the BI process from the incubator's perspective in the two cases with the first code of the six categories from the literature review. They included 26 elements of the BI process for design start-ups. The 26 elements were further classified into three groups, 1) new elements, 2) new contents of existing elements, and 3) same content. As a result, only one new element and 6 new contents were found.

Finally, the final themes were obtained through within-case analysis and cross-case analysis of the six categories of BI process. The final framework of BI process was also reported accordingly. It covered all 14 final themes with two perspectives, incubator and incubatees, with a focus on design start-ups.

The four main research findings provide theoretical significance in two areas, 'business incubation process' and 'design start-ups'. Firstly, for the theory of BI process, the first research finding provided the six categories of the BI process based on reviewing previous studies. This research contributes to the BI process through discussion of the incubatees' perspectives. Secondly, for the theory of design start-ups, this research provides the BI process for design start-ups. This is the research gap in design entrepreneurship, since there was no study on the subject of the BI process for design start-ups in the past. Besides the above two points on the subject of theoretical significance, this research indicates the intersection of the two areas. Firstly, the integration of the two perspectives of the incubatees and incubator that was applied to the case study of the non-profit business incubators, one government-based and one university-based incubator. Secondly, this research also contributed a holistic view with identified final themes and frameworks of the BI process and design start-ups. The two cases supplied rich description on the topic with first-hand data collected using data triangulation.

There are three main contributions to the practice of design entrepreneurship and business incubation. The first beneficiary is business incubator. Both government-based and university-based incubators could develop their BI programmes for design start-ups according to the reported findings and framework. The reported final themes, BI process from the incubatees' perspectives and the specific requirements of design start-ups could guide the incubators to extend their services accordingly. The second beneficiary is design start-ups. The reported final themes and framework may help them to review business plans, seek resources and support in different BI stages and select suitable BI programmes. The final beneficiary is policy makers. The research findings identify policy implications for the BI process for design start-ups. The characteristics of the BI process from incubatees' perspectives and design start-ups could be applied as a reference for policy making. This new policy would help to guide incubator's strategy, service, BI process and mechanism of BI programme and enhance their motivation to design an optimal BI programme which incorporates an understanding of design start-ups' perspectives and concerns.

PUBLICATIONS

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ABBREVIATIONS

Abbreviation	Explanation
BI	Business Incubation
CCI	Cultural and Creative Industries
CSD	Census Statistic Department
DIP	Design Incubation Programme
EE	Entrepreneurship Education
EU	European Union
GDP	Gross Domestic Product
HKPolyU	The Hong Kong Polytechnic University
HKSTP	Hong Kong Science and Technology Parks Corporation
IFE	Institute for Entrepreneurship, HKPolyU
InBIA	International Business Innovation Association
Microfund	HKPolyU Microfund
NASA	National Aeronautics and Space Administration
SQ	Sub Research Question
UK	United Kingdom
WOS	Web of Science

CHAPTER 1. INTRODUCTION

CONTENT

1.1. Research background

The increasing number of entrepreneurs in the global, cultural and creative industries (CCI) plays a crucial role in their countries' economies (Breznitz & Noonan, 2018; Cunningham, 2006; Penaluna & Penaluna, 2009; Werthes et al., 2018). Numerous countries have recognised CCI as an economic driver that boosts gross value added. For example, in the UK, the government offered financial support to CCI in the 1990s, and the gross domestic product (GDP) in the UK was increased by 7.9% in 2000. In 2019, the increase in GDP was 14.6%, and contributed more than GBP 111 billion to the UK economy in 2018, creating 5.4 million jobs in the CCI industry (DCMS, 2019). According to a United Nations Conference on Trade and Development report (UNCTAD, 2019), the contribution of creative goods rose from EURO 208 billion in 2002 to EURO 509 billion in 2015. Design and visual arts are in the leading positions for the highest numbers of import and export creative goods in creative sectors in the global markets. Significantly, the creative economy, creative industries and creative entrepreneurs are essential to the economies. However, research studies in this area are comparatively limited (Cunningham, 2006; Damásio & Bicacro, 2017; Fleischmann et al., 2017; Henry, 2007; Henry & De Bruin, 2011), specifically in design sectors. In addition to current research in the field of business incubation, the topic of incubation usually focuses on technology, because the technology start-ups are the first to receive funding. Any focus on creative or design entrepreneur start-ups has been limited to the field of incubation (Hackett & Dilts, 2004b, 2004a; Hallam & DeVora, 2009; Mian et al., 2016). The other research focus, which was on social business incubation (Hughes et al., 2007; Perdomo et al., 2014; Shahverdi et al., 2018; Tötterman & Sten, 2005), did not focus on the design industry. Other research focused on university incubator initiatives (Botha & Ras, 2016; Culkin, 2013; Hallam & DeVora, 2009; Jones et al., 2014; McAdam et al., 2016; McAdam & McAdam, 2008; Mian, 1996, 1997; Pruett et al., 2009; Rizvi et al., 2015; Rothaermel & Thursby, 2005; Shahverdi et al., 2018; Voisey et al., 2013; Voisey et al., 2005; Wonglimpiyarat, 2016), and similarly neglected the design industry. A number of the past studies focused on science parks in different countries (Chan & Lau, 2005; McAdam & McAdam, 2008; Phan et al., 2005; Ratinho & Henriques, 2010; Sun et al., 2007), but these too neglected the design industry. As a result, it was concluded that there was a lack of research in the field of business incubators for design start-ups.

Entrepreneurship education at design schools is another issue to be addressed. Entrepreneurship Education (EE) has become essential in both developing and developed countries, and many universities have developed EE as a core subject, introducing it into their curricula or their entrepreneurially related programmes, including university incubators (Ahlstrom et al., 2018; Bezerra et al., 2017; Blenker et al., 2014; Carvalho et al., 2015; Matlay 2006). The importance of entrepreneurship education has been widely recognised over many years and from different research perspectives. Some studies focused on experiential learning on the subject of Entrepreneurship Education (EE) (Dobson et al., 2018; Karimova & Rutti, 2018; Pillay & James, 2013). Other studies focused on design and innovation thinking, while some researchers were involved in the assessment of ideas in EE (Carey & Matlay, 2010; Raffo et al., 2001). The statistics show that, because of the increasing activities of EE, the level of job creation has increased in recent years (GEM, 2016). The Global Entrepreneurship Monitor report (GEM, 2017), suggests that youth entrepreneurship programmes should not be once-off activities and should provide interactive, lifelong learning so that students may acquire the necessary business skills. However, the question remains whether the existing entrepreneurship programmes, including business incubation, are appropriate for assisting designers to start their businesses. Further to this, it is debatable whether there are enough long-term or lifelong university entrepreneurship programmes – including business incubation – available in which designers may participate. Besides, it is questionable whether the existing programmes providing such training are enough or appropriate to meet their needs. The most suitable, related entrepreneurial models, such as business incubation process to facilitate universities' design students and graduates to start their businesses instead require further investigation.

1.2. Research motivation

This background of current academic research and practice on the topics of design entrepreneurship and business incubation process triggered the motivation of this research. Overall, there are three areas of relevance, which cover academic motivation, and application motivations related to design entrepreneurship and business incubation (BI) programmes.

Firstly, the motivation was to fill the gaps in existing entrepreneurship research on the business incubation of design start-ups. As introduced in the last section of background, there

have been few studies on the design start-ups, although they are a crucial part of entrepreneurship and also economics. Current theories on the BI process have been developed mainly on the basis of studies on technology start-ups, instead of design start-ups. Technology start-ups focus mainly on new technologies and technological research and development. The current BI process includes selection criteria, infrastructure, business service, networking and entrepreneurship training which based on technology business, and this is different from design business (Aakko& Niinimäki, 2018; Goldsby et al., 2017). Design start-ups are a special group and a particular subject in the entrepreneurship field should be studied and understood in depth. It is worthwhile to explore this research area to understand the current practice of BI process for design start-ups and find out if there are any similarities and differences between the incubator's expectations and incubatees' perspectives on the subject of the BI process.

The second motivation was to develop a guideline for design entrepreneurship within the frame of the business incubation (BI) process. In practice, design entrepreneurs need systematic guidelines for their entrepreneurial business development, especially in line with the BI process. Due to the special business nature, which is distinct and different from non-design start-ups, design start-ups cover a wide range of discipline areas, lack core competitiveness, and need professional support in the form of facilities and networks. The handling of these challenges in the business incubation stage is an urgent and important issue.

Thirdly, the requirement of setting up a design start-ups business through business incubators could be generated. The incubator may benefit from this research by further considering the main elements in the BI process for design start-ups. The value of the potential application of the research findings has been shown in the author's previous studies (Fong, 2020). It reported that training, mentorship, and finance are the most important for design start-ups. It is suggested that different types of BI be compared for design start-ups in terms of services and support. In the following sections, the research gap of this study is presented.

1.3. Research gaps in previous studies

There was one main research gap identified in this study: no framework exists to illustrate the business incubation process for design start-ups.

Firstly, the existing business incubation programmes are mainly based on technology industries, and they are not specific to design industries. As stated above, many entrepreneurial programmes have been established worldwide in the past 50 years, including business incubation. Most of the existing entrepreneurial programmes, including business incubators, are based on technology, and they are not specific to the design sector or design business. For example, in Hong Kong, the technology business incubator programme was developed in 2000 and operated by the Hong Kong Science and Technology Parks Corporation (HKSTP), a government organisation. In 2005, HKSTP launched the Design Incubation Programme (DIP), which specifically targeted designers. Since the financial crisis in 2008, the Hong Kong Government has supported designers to start their businesses in order to help the design industry to boost the employment rate (GEM, 2016). In March 2018, the government allocated HKD 500 million to launch a series of entrepreneurship programmes in order to support local designers to participate in overseas fashion shows or international exhibitions worldwide. This was also aimed at stimulating and promoting new ventures in local design and introducing designers to the international market. Several funding schemes for youths and entrepreneurs have also been set up, but only a limited amount of research has been carried out in the area of young entrepreneurs (Cheung, 2008a, 2008b; Cheung, 2012; LAI, 2017; Man & Lau, 2005; Mok, 2005; Li & So, 2007; Sun et al., 2007, 2017; Yu, 2013; Wang, 2018). Since the youth unemployment rate in Hong Kong was 5.3 per cent in March 2018, entrepreneurship offered opportunities to increase job creation and stimulate economic growth (HKSAR, 2018). However, the funding and support that the government offered focused on high technology rather than the design industry (Sun et al., 2007). It is worthwhile to note that the existing business incubator programmes in Hong Kong mainly target candidates with prior knowledge in the field of business, in addition to several years of working experience, while some programmes cater for participants with different types of industry experience. Few studies have been undertaken about design incubators in Hong Kong (Fong, 2020). The questions are therefore: How do these entrepreneurial programmes, specifically business incubation, help designers to start their businesses? In addition: Do designers find that they are helping them? According to a report published by the World Bank (2018), Hong Kong was ranked number four out of 190 countries for ease of doing business in terms of physical infrastructure and government policies on taxes and bureaucracy; hence it rated highly as an entrepreneurial ecosystem. This demonstrates that Hong Kong has the

potential to develop further in terms of its entrepreneurial system, as it is already a world-class business centre. For this reason, the government supports entrepreneurial activities by providing incentives and financial assistance to start-up companies, including business incubation, and established the science parks in 2001 (HKSTP, 2020). Given the above, it may be seen that Hong Kong has both the financial and background advantages to support and develop innovation-driven entrepreneurial activities. As a consequence, the decision was made to conduct this research in the area of business incubation for design start-ups in Hong Kong.

Secondly, the creative entrepreneurs, especially design start-ups, have not been fully studied by scholars in the past (Bujor & Avasilcai, 2016; Chaston & Sadler-Smith, 2011). There is a lack of research on the business incubation process for design start-ups, especially incubators' expectations and incubatees' perspectives in the business incubation process. It should be noted that the terms 'creative entrepreneur' and 'creative industries' have not been fully researched by scholars in the past, not even by those in the field of business and management mainstream research (Bujor & Avasilcai, 2014; Chaston & Sadler-Smith, 2011). Moreover, most of the previous studies viewed design thinking as a tool of the design process in terms of business strategies or business education (Beltagui, 2018; Chou, 2018; Elsbach & Stigliani, 2018; Furue & Washida, 2017; Glen et al., 2014; Huq & Gilbert, 2017; Kleinsmann et al., 2017; Nielsen & Stovang, 2015; Schumacher & Mayer, 2018; Tovey, 1986; Von Kortzfleisch et al., 2013). These studies rarely focused on how designers could be helped to become entrepreneurs. They seemed to recognise the fact that design competence was important and that design thinking was one of the key components in developing a business (Blenker et al., 2014; Chaston & Sadler-Smith, 2011; Shahverdi et al., 2018; Von Kortzfleisch et al., 2013). However, they ignored the professionalism of a university-educated, well-trained designer. Previous studies did not advise on how a designer should be taught to become an entrepreneur, which is the second research gap addressed by this study. Although there are many entrepreneurial programmes, there is a lack of research on business incubators for design start-ups.

Therefore, based on the above research gap and reasons, the objectives and the research questions of this study were defined. Besides attempting to fill this gap, this research

contributes to the theory of business incubation with the perspective of incubators and a focus on design start-ups.

1.4. Research questions

One main research question was defined based on the results of the literature review in Chapter Two as follows:

What is the business incubation process for design start-ups?

The main question is further broken down into three sub- questions (SQ):

SQ1: What are the incubator's expectations and perspectives of their design incubatees and the programmes?

SQ2: What are the design incubatees' expectations and perspectives on their business incubators in terms of services and support?

SQ3: What are the key elements of business incubation process for design start-ups?

1.5. Research objectives

In order to address the above one main research gap of business incubation for design start-ups, this research aimed to explore two types of non-profit business incubators for design start-ups in terms of their services and support. Specifically, the study emphasised prevailing different business incubation process models of business incubator programmes that would pave the way for local designers to become entrepreneurs. The following objectives support the achievement of the stated aim of the research:

1. To establish an understanding of government-based and university-based business incubation process for design start-ups.
2. To explore the business incubation process for design start-ups from two perspectives: incubator and incubatee.
3. To develop a framework of incubating design start-ups by business incubator with a process-based view.

1.6. Significance and contributions

There are four main research findings reported in this research. Firstly, the six categories of BI process were reported as the first code from literature review in Chapter Two. It was limited in non-design start-ups and only from the perspective of incubator. These six categories supplied a framework of this research in case study and were applied as an analytical frame of within-case and cross-case analysis. Secondly, the incubatees' perspectives of the BI process were stated through comparing the second codes of incubatees' perspectives in case A and B with the first code of six categories from the literature review. Thirdly, the characteristics of BI process for design start-ups were reported based on the comparison between BI process from incubator's perspective in case A and B with the first code of the six categories from the literature review. The final themes were obtained through cross-case analysis to show the BI process of design start-ups with an integration of the perspectives of incubator and incubatee. The final framework of the BI process was also reported accordingly.

1.6.1 Contribution to the theories of business incubation and design start-up

The four main research findings reported in this research contribute to two theoretical areas, 'business incubation process' and 'design start-ups'.

For the theory of business incubation process, the first research finding established the six categories to describe the process on the basis of the review of previous studies. It established a holistic review of this topic. Moreover, it indicated the research gap which was the limitation of the perspectives of incubator in the previous studies. In this case, this research contributes to the business incubation process through bringing incubatees' perspectives into discussion.

For the theory of the design start-up, which is a main topic of design entrepreneurship, this research describes the business incubation process of design start-ups. This is a research gap in design entrepreneurship since there has been no study on the BI process of design start-ups in the past.

Besides contributing to the theories of business incubation process and design entrepreneurship, this research also indicates the un-studied intersection of the two areas, specifically business incubation process and design start-ups. To achieve it, an integration of

two perspectives of incubatee and incubator was applied to the case study of non-profit business incubators, one government-based and one university-based.

As initial research in the field of the intersection of business incubation process and design start-up, this research established a holistic review with identified final themes and framework. The two cases supplied a rich description of the topic with first-hand data collected using a triangulation method.

1.6.2 Contribution to the practice

The four main research findings make a significant contribution to the practice of design entrepreneurship and the incubator. The main beneficiaries are incubator, design start-ups and policy makers.

Business incubators, both government-based and university-based could design and develop their business incubation programmes for design start-ups according to the reported findings and framework. The reported final themes, BI process from incubatees' perspectives and the distinctive requirement from design start-ups could guide the incubators to extend their service accordingly.

From the perspectives of design start-ups and the design industry, the themes and framework may help them to review business plans, seek resources and support in different incubation stages and select a suitable incubation programme.

For policy makers, the findings in this thesis identify policy implications for the BI process for design start-ups. The characteristics of the BI process from the perspectives of incubatees and design start-ups could be applied as a reference for policy making. With them, new policy to guide incubators' strategy, service, process and mechanism may be considered and released. Policy enhancing the motivation of design start-ups may also be formulated with a better understanding of the concerns of design start-ups, as reported in this research.

1.7. Structure of the thesis

This thesis has eight chapters in total, and the thesis is structured as follows:

Chapter 1 presented an overview of the background of this research, research motivations, research gaps in previous studies, objectives of this research along with research questions, and the significance and contributions of this research with theories of BI and design start-ups and the practice. Finally, the structure of the thesis was indicated.

Chapter 2 supplies a broad overview of business incubation literature, which includes its historical background with three generations of business incubators, definitions of business incubators, types of business incubators comprising government-based and university-based incubators, business incubation process in relation to the three generations of business incubators and their components, and six categories of the BI process. After reviewing the BI literature, an initial conceptual framework of the BI process was developed. Another part of the literature comprises one area: design start-ups literature. Design start-up references consist of the definitions of design start-ups, the context of design start-ups within the cultural and creative industries and business incubation for design start-ups.

Chapter 3 covers the research methodology. A qualitative approach of multiple case study was used in this thesis. It consists of the selection of cases, which include selection of two types of business incubators, case A, government-based incubator and case B, university-based incubator, then the research design which includes 3 phases: (1) literature review, data collection and analysis and experts' review. Finally, research ethics are stated at the end of this chapter.

Chapter 4 provides the within-case analysis of each case of incubators' perspectives of the two cases: Design Incubation Programme (DIP) and HKPolyU Micro fund (Microfund) on six categories of the BI process, respectively, which include: 1) Selection process and exit policy, 2) Infrastructure, 3) Financial support, 4) Business services support, 5) Networking, and 6) Entrepreneurship training. The first and second codes in each case were generated at the end of the chapters after analysis.

Chapter 5 provides a cross-case analysis of each case of incubatees' perspectives of the two cases: DIP and Microfund for six categories of the BI process, respectively, which include: 1) Selection process and exit policy, 2) Infrastructure, 3) Financial support, 4) Business services

support, 5) Networking, and 6) Entrepreneurship training. The first and second codes in each case were generated at the end of the chapters after analysis.

Chapter 6 provides the characteristics of BI process for design start-ups and incubatees' perspectives. There are two main areas in the chapters: Firstly, the perspectives from incubatees on the BI process, which include comparing the second codes results from incubatees' perspectives in the two cases with the results of the first codes from the literature review. Secondly, the second codes of the two cases from the incubators' perspective were compared with the first code derived from the literature review.

Chapter 7 provides the themes of the business incubation process of the two cases between incubators and incubatees' perspectives based on the analysis of the second codes in Chapter 4 and 5, then, the first themes of BI process from within-case analysis were developed. Finally, the final themes of the BI process for design start-ups were discovered and presented, the revision of the initial framework proposed and visualised, and the validation of the findings with expert review results were stated at the end of this chapter.

Chapter 8 offers conclusions about the four research findings in this research, which includes, 1) The initial six categories of the first code from literature review, 2) incubatees' perspectives of BI process, 3) BI process for design start-ups and 4)Final themes of BI process and the framework. Finally, the significance and contribution of the research, limitations of the research and future research direction are stated at the end of this chapter.

CHAPTER 2. LITERATURE REVIEW

COTENT

2.1. Introduction

Business incubation is rooted in economic development. It varies in the degree of entrepreneurship according to the historical stage and characteristics of the economy at that stage. Technology, social entrepreneurship and design entrepreneurship are the main types of entrepreneurship. Among them, technology and social entrepreneurship start-ups are the most popular ones, while design start-ups had seldom be studied. The absence of research on the business incubation process of design start-up was the gap identified in this research. In this chapter, concepts related to business incubation, design start-ups and business incubation process were reviewed to establish a comprehensive understanding and initial framework of the identified topic.

This chapter consists of two main parts, the business incubation process and design start up. There are seven sub-sections in the first part of the business incubation process.

1. Historical review of business incubation in line with three generations of business incubators (section 2.2).
2. Definition of business incubators (section 2.3).
3. Types of business incubators with a focus on government-based and university-based incubators (section 2.4).
4. The business incubation process (section 2.5).
5. The six categories of the business incubation process (section 2.6).
6. An initial conceptual framework of the business incubation process (section 2.7).
7. A summary of business incubation literature (section 2.8).

The second part of the literature review reviewed the background of design start-ups and reported previous studies related to business incubation for design start-ups. At the end of the literature review, a main research gap was identified. Based on it, the main research question and three sub-research questions were defined.

Business incubation is not a novel topic in entrepreneurship and there are sufficient studies on the subject. To gain a comprehensive understanding of it, a systematic literature review was employed (Gough et al., 2012; Pittaway *et al.*, 2004; Tranfield *et al.*, 2003). The systematic literature review of this research comprised of three step. The first was to search for and

identify previous studies relevant to business incubation from 1985 to 2021 in peer-reviewed journals within two databases, SCOPUS and Web of Science (WOS). Besides 'business incubation,' the term of 'business incubator(s)' was also used to include all the related studies. As a result, a total of 1,725 papers was found. Of these, 450 papers were from SCOPUS and 1,275 from WOS.

In the second step, references not specifically related to the subject area of business incubation, such as biotechnology, medical and mathematics etc., were deleted. As a consequence, a total of 1,292 papers were kept. Of these, 390 papers were from SCOPUS and 902 papers were from WOS.

The third step was the screening process. In it, all the searched references were screened according to their title, keywords and abstracts, to identify those in the scope of this research, including the fields of business management and accounting, economics and finance, computer science, social sciences, arts and humanities, environmental science and psychology. As a result, the final number of references was decreased to 698 (See Table 2.1).

Table 2.1 Results of reference number related to business incubation through systematic literature review

Keywords	SCOPUS	WOS	Total number of references from the two databases	Number of references after screening
'Business incubator', 'business incubators' and 'business incubation'	373	884	1257	698

As the database and foundation of the literature review of business incubation, the 698 papers support this research in the following five areas:

1. Historical review of business incubation research (Table 2.2).
2. 25 of the most cited research publications on the subject of business incubation to explore the main scope of business incubation (Table 2.3).
3. Research studies on types of business incubators (Table 2.4).
4. 24 references of the business incubation process were obtained through further searching within the 698 papers (Table 2.5) and the six categories of BI process were summarized (Table 2.6).

5. 34 references about design start-ups in the 698 papers were identified to review the concepts of design start-up (Table 2.7).

In the following sections, the concepts related to business incubation are reviewed and discussed according to the above five, broad categories, including historical background, changed definitions of business incubation, types of business incubators, the business incubation process and its six main categories and design start-ups.

2.2. Historical background of business incubators

Business incubation has a long history. The record of the first business incubator was started in the 1950s. In previous studies, three generations are identified as basic historical frame to describe the evolution of business incubators and incubation process. The first generation is the initial stage from 1959 to 1979. The second generation is the developing stage from 1980 to 1999, and the third generation is a network for globalisation since 2000. Each generation had its unique characteristics in respect of the incubation process (Shepard, 2013). In the following sections, the three generations of business incubation are reviewed and introduced to establish the historical background of this research.

2.2.1 The first generation: the initial stage from 1959 to 1979

The first business incubator was launched in 1959 by Joseph Manusco. He had purchased an 850,000 square foot building in New York and could not succeed in securing one single tenant for the huge structure as a whole. As a result, he generated a ground-breaking solution through dividing the space into different rooms and leasing them to different tenants (Shepard, 2017). Finally, more than 20 tenants, involving 100 people, moved into the building which then became the first business incubation centre, the Batavia Industrial Centre (Adkins, 2003; Barrow, 2001). The tenants relied on the Centre to provide them with services and other forms of business assistance (Hackett & Dilts, 2004a). This concept of a business incubator-incubation model spread to Europe during the 1960s (Hackett & Dilts, 2004a). The first business incubator was established by the government of the United Kingdom (UK) in Covent Garden as a community of design-related firms. By 1975 the UK had several early incubators, known as ‘beehives’, which used the concept of the incubation programme to divide large office spaces and lease them to small businesses. Only the property *per se* was

initially leased to small firms, but tenants later received additional services such as loan capital, training and advice (Barrow, 2001). The format of a business incubation programme was based upon these early business incubators.

Silicon Valley was established in the early 1970s in the US, and represents high-technology firms (Estruth, 2019). A large number of technology corporations are located in the Silicon Valley, including Apple, Cisco, Google and Intel. Stanford University's leaders, in the 1980s, and these leaders, including the faculty members and graduates, developed high-tech firms in the Silicon Valley. The leader of Stanford University, Frederick Terman, nurtured Hewlett-Packard, Xerox, and other semiconductor firms in the place (Gold, 2017;Katz, 2015). It is the world's largest high-tech sector to host major companies and start-ups, including well-known companies such as Amazon, Hitachi, IDEO, Logitech, Netflix and eBay (Adams, 2021; Engel, 2015).

In previous studies, three characteristics of the first-generation business incubators were reported. Firstly, the incubators normally targeted three different types of tenants in the first generation. The three types of tenants were small businesses, university start-ups and individual entrepreneurs (Wiggins & Gibson, 2003). Secondly, these incubators were mostly technology based. Thirdly, provision was made for basic infrastructure and shared resources to the tenant companies, later referred to as incubatees (Barrow, 2001; Bruneel *et al.*, 2012; Lalkaka & Bishop, 1996; Shepard, 2017).

2.2.2 The second generation: the developing stage from 1980 to 1999

The second generation of business incubation was characterised by a steady increase in the number of incubators across the world from the 1980s to the 1990s (Barrow, 2001; Verma, 2004). Most of the technology start-ups had declined by the 1980s, due to the high unemployment rate, as well as lack of business services and support to incubatees. Even these technology start-ups were supported by universities' entrepreneurship programmes and corporate incubators, they still could not survive in the such difficult business environment. To further support and facilitate start-ups in these conditions, incubators extended their basic infrastructural support to entrepreneurship training, coaching and networking.

Moreover, instead of focusing on technology in the first generation of business incubators, the university-based incubator appeared in the second generation. The typical case is the collaboration between Rensselaer Polytechnic Institute university-based incubator and the National Aeronautics and Space Administration's (NASA). In 1980, George Law, president of Rensselaer polytechnic Institute, collaborated with entrepreneurs and students on the subject of start-up businesses. Students and their professors started their businesses, aided by laboratory facilities and advice from the business sector (Barrow, 2001). The advantages of this initiative were clear. The university could attract talented students and secure more funding. After ten years of collaboration, the RPI identified a list of criteria of a successful incubator, including the number of jobs created, survival rate, occupancy at incubator centres, annual sales of graduate incubatees and the number of student interns employed (Barrow, 2001). These criteria became the framework for measuring the success of a public incubation programme, especially for government- and university-based incubators. They applied the measurement to determine their missions and objectives (Lalkaka, 2001; Shepard, 2017).

In addition to the emergence of the university-based incubator, there was also a growing number of private incubators due to the rise in popularity of e-commerce in the 1990s (Shepard, 2017) and the 'tech bubble' crisis in which affected the stock markets around 2000 (Griffin *et al.*, 2011). This resulted in the booming of private incubators, which normally invested in small firms. The representatives of these private incubators are Cisco, Kodak and Apple being examples.

Compared to the first-generation of business incubators, there were more achievements obtained in the second generation. Firstly, the university and government-based incubators were achieving success. Secondly, a set of criteria to gauge the success of business incubators was developed. Thirdly, the number of private incubators increased. Finally, the support supplied by incubators was expanded from infrastructure to various business services to satisfy the various demands in the business development process.

2.2.3 The third generation: a network for globalisation from 2000 to present

Incubators sought to enhance their networks and evolved from innovation investment to globalisation in the third generation of business incubator (Lalkaka, 2001). This was explained by the consumers' preference for high-tech products (Shepard, 2017). As a result, improving

the effectiveness of incubation became the main task of the incubators in this generation. A number of academic studies on the best practices of business incubators were carried out during this period (Bergek & Norrman, 2008; Lalkaka, 2001).

It was stated that specialist incubators were increased to serve the needs of specific industry sectors (Aerts et al., 2007). In practice, these specialised business services have been evident since 2010. They were mainly in the categories of infrastructure, business support and business networks (Štefko & Steffek, 2017). There were various funding schemes available to entrepreneurs, such as co-working space, government funding, corporate new venture funding and accelerators (Barrow, 2001; Pauwels *et al.*, 2016). It was estimated that, in 2020, there were between 7,000 and 15,000 incubators across the world, each of them providing unique business services and funding to incubatees in different industrial sectors (INBIA, 2019; Shepard, 2013; Wonglimpiyarat, 2016). The focus of the incubatees was mainly on technology-based start-ups

Two types of incubators were identified, these being generalist and specialist incubator. Generalist incubators do not focus on one specific industry, while specialist incubators focus on a specific industry sector (Aernoudt, 2004; Grimaldi & Grandi, 2005; Haapasalo & Ekholm, 2004; Tang *et al.*, 2019). Although both types have pros and cons, several researchers have held the view that specialist incubators are more effective than generalist ones (Haapasalo & Ekholm, 2004; Vanderstraeten & Matthyssens, 2012).

Crowd funding was established in 2008 after the financial crisis, provide funding to start-ups projects (Hervé, & Schwienbacher, 2018). They could evaluate the start-ups projects through an online platform and provide feedback and comments to the start-up teams. Among them, the most popular platforms are Kickstarter, Indiegogo and Kiva. These platforms displayed start-ups projects with the projects' goals, description, the project teams and funding plan (Allison et al., 2015; Lin et al., 2013). A number of innovation-driven entrepreneurs were encouraged to raise funding through these platforms.

To summarise, the three generations of business incubator show the evolution of incubation, improved understanding of the business incubation processes and the resources, ranging from simple infrastructure to specialised equipment. The first generation of business

incubator involved limited incubators and start-ups, as well as basic business services to the incubatees. There was no explicitly defined framework or an indication of the success factors of business incubator in this generation. In the second generation of business incubator, their types ranged from private ones to government-based and university-based. The scope of service supplied by the business incubator was also extended, from basic infrastructure to various resources in line with the entrepreneurial business process. As such, the subject of start-ups attracted the attention of academic researchers to study on the success factors and the effectiveness of the business incubator. A BI framework for technology-based incubators was developed in this generation. Finally, the third generation of business incubator involved specialist business incubators for start-ups in specific industry sectors. It was stated that the specialist business incubators provided customized package of business service to incubatees. Frameworks of these specific service and support forms were developed. A general framework of BI was developed in the third generation. However, there was no study on the BI process for design start-ups. This is the gap that this research aimed to fill.

2.3. Definitions of business incubators

To study the BI process for design start-ups, a literature review of the concept of business incubator was conducted to define the scope of this research. Literature which stated definitions of business incubators were selected from the database of 698 papers (Table 2.1) As the result, 12 definitions of business incubator were reported (Table 2.2) and the 25 most cited research publications related to the business incubation field were analysed in detail (Table 2.3).

Table 2.2 Summary of business incubator definitions

Generation of business incubator	Author	Definition
2nd generation	Smilor (1987b)	Shared premises, pooled administration, interaction between tenants, business advice networks, and a manager as a value-adding agent.
2nd generation	Allen and McCluskey (1991)	A facility that provides affordable space, shared office services and business development assistance in an environment conducive to new venture creation survival and early-stage growth.
2nd generation	Sherman and Chappell (1998)	Business incubators accelerate the successful development of entrepreneurial companies.
3rd generation	Hansen *et al.* (2000)	Any organisation that helps start-ups develop in an accelerated fashion by providing them with a bundle of services, such as physical space, capital, coaching, common services and networking connections.
3rd generation	Hackett and Dilts (2004a)	A strategy for facilitating new business development rather than a strategy for developing real estate.
3rd generation	Bøllingtoft and Ulhøi (2005)	Business incubator is an umbrella term for any organisation that provides access to affordable office space and shared administrative services.
3rd generation	Hallam and Devora (2009)	About providing the technology entrepreneur with access to a range of capabilities that he/she may not have in their existing company structure and which the incubator provides access to in order to translate company ideas into sellable products and services.
3rd generation	Voisey *et al.* (2013)	A process that offers entrepreneurs support in the early stages of business development, helping them to overcome shortcomings by supporting entrepreneurial processes.
3rd generation	Miller and Stacey (2014)	A collection of techniques that can be used to prove an idea, develop a team and de-risk ventures for later-stage investors.
3rd generation	Jonathan *et al.* (2017)	A unique and highly flexible combination of business development processes, infrastructure and people, designed to nurture and grow new and small businesses by supporting them through the early stages of development and change.
3rd generation	United Kingdom Business Incubation (2019)	Provide start-ups and early-stage businesses with the support and resources those young companies find difficult to access. Their support might involve access to networks, investors and mentors, or co-working space alongside other businesses and experienced professionals.
3rd generation	InBIA (2019)	Offers programmes to member companies that include mentoring, education and training, and informal learning opportunities and charges monthly programme fees in exchange for an office. Incubator as an economic envelopment tool designed to accelerate the growth and success of entrepreneurial companies through an array of business support resources and services.

Table 2.3 Top 25 most cited business incubation research by year

No.	Author	Topic	Journal	Year	BI generation	Count	Subject area, categories, scope
1	Mian, S.A.	University technology business incubators	Research Policy	1996	2nd	243	Technology management
2	Mian, S.A.	University technology business incubator assessment	Journal of Business Venturing	1997	2nd	239	Business management
3	Autio, E. and Klofsten, M.	Technology business incubators assessment	Journal of Small Business Management	1998	2nd	124	Business management
4	Hansen, M. R, Chesbrough, H. W., Nohria, N. and Sull, D. N.	Networked incubators	Harvard Business Review	2000	3rd	255	Business management
5	Rice, M. P.	Business incubators and incubatees relationship	Journal of Business Venturing	2002	3rd	200	Business management
6	Phillips, R. G.	Technology business incubators assessment	Technology in Society	2002	3rd	99	Technology management
7	Hackett, S. M. and Dilts, D. M.	Business incubation process	Journal of Technology Transfer	2004	3rd	120	Technology management
8	Markman, G. D., Phan, P. H., Balkin, D. B. and Gianiodis, P. T.	University-based technology incubator	Journal of Business Venturing	2005	3rd	318	Business management
9	Bøllingtoft, A. and Ulhøi, J. P.	Networked business incubator	Journal of Business Venturing	2005	3rd	315	Business management
10	Grimaldi, R. and Grandi, A.	Business incubators assessment	Technovation	2005	3rd	296	Technology management
11	Chan, K. F. and Lau, T.	Technology business incubator assessment	Technovation	2005	3rd	222	Technology management
12	Tötterman, H. and Sten, J.	Business incubation in networking	International Small Business Journal	2005	3rd	159	Business management
13	Carayannis, E. G. and Von Zedtwitz, M.	Business incubation model	Technovation	2005	3rd	144	Technology management

Table 2.3 (continued)

No.	Author	Topic	Journal	Year	BI generation	Count	Subject area, categories, scope
14	Aerts, K., Matthyssens. P., Vandenbempt, K.	Business incubators assessment	Technovation	2007	3rd	207	Technology management
15	Hughes, M., Ireland, R.D. and Morgan R.E.	Business Incubation in networking	Long Range Planning	2007	3rd	121	Geography, planning and development
16	Bergek, A. and Norrman, C.	Business incubator assessment	Technovation	2008	3rd	309	Technology management
17	Scillitoe, J.L. and Chakrabarti, A.K.	Business incubation process	Technovation	2010	3rd	139	Technology management
18	Ratinho, T. and Henriques, E.	The role of business incubators	Technovation	2010	3rd	134	Technology management
19	Schwartz, M. and Hornych, C.	Business incubator in networking	Technovation	2010	3rd	107	Technology management
20	Fini, R., Grimaldi, R., Santoni, S. and Sobrero, M.	The role of universities incubators	Research Policy	2011	3rd	145	Technology management
21	Bruneel, J., Ratinho, T., Clarysse, B. and Groen, A.	The selection criteria and exit policy of business incubators	Technovation	2012	3rd	220	Technology management
22	Marlow, S. and Mcadam, M.	Technology business incubation in gender perspective	Entrepreneurship: Theory and Practice	2012	3rd	98	Business management
23	Bøllingtoft, A.	Business incubation process	Technovation	2012	3rd	98	Technology management
24	Pauwels, C., Clarysse, B., Wright, M. and Van Hove, J.	Business incubation model of accelerator	Technovation	2016	3rd	141	Technology management
25	Mian, S. A., Lamine, W. and Fayolle, A.	Technology business incubation	Technovation	2016	3rd	133	Technology management

Given the constantly changing business environment, the development of business incubators also changes continuously, depending on their business models (Tang *et al.*, 2014), business opportunities (Hughes *et al.*, 2007) and nature of the business (Bøllingtoft & Ulhøi, 2005). The majority of the definitions of a business incubator were related to technology-based incubators, and all of them were from either the second or the third generations (Table 2.3). It is noteworthy that the second generation of business incubators focused on university-based technology and that their infrastructure and services were normally provided by universities or technology transfer centres. Research papers have offered different definitions of business incubators since the mid-1980s, but it was generally accepted that incubators provided the necessary physical infrastructure and shared services to small firms (Allen, 1985; Campbell & Allen, 1987; Smilor, 1987a). According to the three generations of business incubator, incubator support was expanded from infrastructure hardware to software such as marketing and promotion, financial support, mentorship, entrepreneurial training and consultancy services. In addition both non-profit and profit-oriented incubators, which provide either specialised or general business services to incubatees, were found in all three different generations of business incubator.

The extent of services and support provided during the third generation was increased by the addition of networking opportunities, business incubation processes and assessments. The development of business incubators resulted in them addressing the business incubation process instead of merely offering infrastructure or office space (INBIA, 2019; Jonathan *et al.*, 2017; O'Neal, 2005). Numerous researchers tended to focus on incubators that created value in the network-based system as incubators supply business connections to incubatees, which adds value to the business incubation process (Hansen *et al.*, 2000; Honig & Karlsson, 2010; Mcadam, 2004). Rice (2002) postulated that these networks were related to collaboration between incubators and incubatees, adding that the definition of business incubator was focused on both incubators and incubatees and that the success of the business incubator was subject to incubatee firms' eagerness to participate. Hackett and Dilts (2004a) later defined incubators as "a shared office space facility that seeks to provide its clients (i.e. 'portfolios' or 'clients' or 'tenant companies') with strategic, value-adding intervention systems (i.e. business incubation) of monitoring and business assistance" (p.41). They emphasised that incubators' networking with other stakeholders was important, local

universities, communities, lawyers, accountants and investors being pertinent examples. Hughes *et al.*, (2007) defined business incubator as "the outcome of a network model of powerful business connections that enables value creation through firms establishing and exploiting interactive ties among incubating firms and networked firms"(p.155). They highlight the fact that the effectiveness of an incubator's network is dependent upon incubatees' willingness to participate in networking.

After having reviewed the definitions, the International Business Innovation Association's (InBIA) definition was adopted in this research. It refers to the business incubator as follows: "An incubator as an economic envelopment tool designed to accelerate the growth and success of entrepreneurial companies through an array of business support resources and services (INBIA, 2019). " There two reasons for selecting this definition. Firstly, as an international non-profit entrepreneurship incubation organisation, InBIA has been a pioneer in providing information and support to business incubators for more than 30 years. Secondly, as the development of business incubators constantly changes, it is appropriate to use the most up-to-date definition to reflect the current status of business incubation. The InBIA definition is an updated one and embraces the diversity of business incubator types. It supplies a foundation of the BI concept in this research, which places emphasis on design start-ups.

2.4. Types of business incubators

Through reviewing the evolved concepts of business incubation, the types of business incubator were found which indicated the scope of a business incubation process. The initial types of business incubator were reported in 1985 during the first generation. These were classified into five types: 1) industrial; 2) university-related; 3) for-profit property development; 4) for-profit investment; and 5) corporate ventures (Campbell *et al.*, 1985). Two years later, the types of business incubator was further summarized into four: 1) university; 2) private; 3) corporate; and 4) community (Smilor, 1987a). This initial typology of business incubator had implied one key dimension, profit or non-profit. Based on it, business incubator was further developed in the two categories, profit and non-profit in the second generation and the third generations.

In this research, 13 studies on the typology of business incubator were identified in the 698 journal papers retrieved in the literature survey. According to these, the types of business incubator were classified into three categories, specifically profit-oriented, non-profit and other, which refers to unidentified types in those studies (Table 2.4). Among them, profit and non-profit business incubator were the two main types. Beside the factor of profit, the nature of a host organization is the second factor to classify the types of business incubator.

A profit business incubator is a privately owned incubator focusing on generating profits. Such business incubator have specific expectations and sales targets for the incubatees according to the nature of their businesses. According to the nature of the host organization, these profit-based business incubators are further divided into industrial, corporate, private and franchise enterprises. In a profit-based business incubator, there are limited common elements of a business incubation process, since private incubators vary in their purposes and business strategy.

A non-profit business incubator is normally university-based or government-based. There are also sub-groups in the non-profit-based category according to their nature of the incubators' organization, which are community, public and mixed-use. Compared to profit-oriented business incubators, non-profit ones are not only the main type of business incubator, but also share more common factors, despite region, industry sector and markets of incubators.

As a result, the non-profit-based business incubator was considered to be the most relevant to the scope of this research. There are two reasons for this. Firstly, there are shared common factors in the non-profit business incubators. Secondly, design start-ups are normally incubated in the non-profit business incubators in practice, rather than those to profit business incubators. In the following sections, the concept and scope of the two types of non-profit business incubator university-based and government-based are introduced.

Table 2.4 Types of business incubators

No.	Authors	Typology of business incubators		
		Profit	**Non-profit**	**Other types**
1	Campbell *et al.* (1985)	• Industrial • For-profit, property development • For-profit, investment • Corporate venture	• University-based	N/A
2	Allen (1985)	• Private	• Public-based • University-based	N/A
3	Smilor (1987a)	• Private • Corporate/franchise	• University-based • Community	N/A
4	Allen and McCluskey (1991)	• For-profit, property development • For-profit, seed capital	• Non-profit development corporation • University-based	N/A
5	Sherman and Chappell (1998)	N/A	N/A	• Mixed-use • Manufacturing • Technology • Service • Microenterprise
6	Aernoudt (2004)	• Independent and commercial incubator • Company internal incubator • Virtual incubator	• University-based • Regional business incubator	N/A
7	Peters *et al.* (2004)	• Profit	• Non-profit • University-based	N/A
8	VonZedtwitz and Grimaldi (2006)	• Corporate sector enterprises • Private individual	• Government • University-based • Local development bodies	N/A
9	Clarysse *et al.* (2005)	N/A	N/A	• The low selective model • Supportive model • Incubator model

Table 2.4 (continued)

No.	Authors	Typology of business incubators		
		Profit	**Non-profit**	**Other types**
10	Bruneel *et al.* (2012)	N/A	N/A	Three generations of business incubators
11	Voisey *et al.* (2013)	N/A	N/A	• Pre-incubator stage • Incubator stage • Post-incubator stage
12	Hallam and Devora (2009)	• Private	• Government-based • University-based	N/A
13	Mian *et al.* (2016)	N/A	N/A	• Pre-incubation • Post-incubation

2.4.1 Government-based incubators

Social and economic impacts are the main considerations of a government-based incubator. Governments invest in start-ups by delivering incubator services and support, including infrastructure, mentoring and training. They expect these start-ups to create job opportunities, generate profits and be empowered with technological know-how to increase economic growth (Barrow, 2001). A government-based incubator focused on increasing job creation and the development of science and technology of cities by building up infrastructure and incubation programmes (Hausberg & Korreck, 2020). For example, Korea had no business incubators in 90s. According to Korea's Small and Medium Business Administration (KOISRA, 2017), the government of Korea invested heavily in start-ups in 2000. As a result, their technology start-ups contribute to the highest growing industry sector in the world. After 2019, the number of incubators reached 142 and Korea ranked 1st of the most innovation nation in 2019 according to the Bloomberg Innovation Index (Bloomberg, 2019). Government-based incubators generally provide marketing, legal and business services to incubatees or start-ups at preferential rates (Barrow, 2001). They developed a series of criteria for their selection processes to ascertain and monitor the quality of candidates. Some governments collaborate with other organisations to operate the incubator programmes according to the government's agenda (Barrow, 2001).

While having the same primary purpose, the detailed objectives of setting up incubators vary by country due to their economic policies, as well as their explicit expectations of graduates'

employment and their contribution to economic growth (Barrow, 2001; Etzkowitz, 2002; Obaji et al., 2014).

In summary, government-based incubators are not profit based and most of them are fully sponsored and managed by the government. The main purpose of this type of business incubator is to boost economic development in the country by creating jobs and enhancing innovative technology development, mainly for the high-technology industry.

2.4.2 University-based incubators

The main purposes of university-based incubators are to commercialise research outcomes, promote technology transfer (Allen & McCluskey, 1991; Rothaermel & Thursby, 2005; Voisey *et al.*, 2013), and reinforce local and national economies (Grimaldi & Grandi, 2005). There are three features of a university-based incubator. Firstly, among the three purposes, transferring technological knowledge is the unique one of the university-based incubator (Cooper *et al.*, 2012; Tang *et al.*, 2019) comparing to other types of business incubator. Secondly, its incubation model is a linear process from a university to an industry or vice versa. Thirdly, most of them are funded by universities, governments or public organisations (Hallam & DeVora, 2009).

University-based incubators bring together academic, industrial and laboratory expertise to facilitate start-ups by means of entrepreneurial training and knowledge transfer (Etzkowitz, 2002). They support university students to develop their businesses with relevant services and resources (Barbero *et al.*, 2014; Cooper *et al.*, 2012; Grimaldi & Grandi, 2005). A university-based incubator is usually in the form of a student entrepreneurship centre, offering entrepreneurial training and mentoring to its students (InBIA, 2019).

To summarise, a university-based incubator focuses on knowledge transfer and the commercialisation of their students and alumni's innovative ideas through providing funding schemes, entrepreneurial training, and collaboration with industry. University incubators focus on all subject areas but sometimes have specific criteria, such as social innovation or new technology. Although some of the funding was sponsored by the government, it is the university managing the funding, and reporting to the government funding bodies.

2.5. Business incubation process

In this section, the concept of the business incubation process was reviewed to establish a comprehensive understanding of business incubation in respect of the three generations of business incubator.

2.5.1 Busines incubation process in the three generations of business incubator

Although there are many studies on business incubation, the research on the business incubation process is limited and most of them has only focused on incubator facility (Hackett & Dilts, 2004a).

To search the literature about business incubation process, the keywords, including "business incubation process", "business incubator process" and "business incubation mechanism' were used to further searching with in the obtained 698 literature (See section 2.1). As a result, a total of 50 papers was found. Among them, 38 were from SCOPUS, and 12 were from WOS. Through reviewing subject areas unrelated papers such as those in the fields of biotechnology, medical and health science, were deleted. Finally, 24 papers were obtained (Table 2.5). These literatures were classified by the three generations of business incubator. The analysis result contributed to a holistic view of the development of the business incubation process.

Table 2.5 Total number of citations in the business incubation process

Keywords	SCOPUS	WOS	Total number of references from the two databases	Number of references left after screening
"Business incubation process", "business incubator process" and "business incubation mechanism"	38	12	50	24

In the first generation of business incubator (1959-1979), the first concept of business incubation process was proposed by Campbell (1985) with four steps: 1) diagnosis of the businesses' needs; 2) selection and monitoring; 3) capital development; and 4) simple and direct access to the expert network. Smilor (1987a) extended Campbell's process by adding more components to be incorporated into the incubator system. These components are entrepreneurs, incubators, incubation affiliation, the support system and tenant companies. It was shown that the aim of the first generation of business incubator is to clarify the basic services to incubatees.

Based on the basic process concept developed in the first generation, a new approach to develop the BI process was developed in the second generation of business incubator from 1980 to 1999. . It focused on cooperation with an external network with various stakeholders, including business and innovation centres, government and university (Hisrich,1988).

In the third generation of business incubator from 2000 to present, the concept of network was enriched to incorporate globalisation and more elements related to network were reported. Networking was defined as a crucial element to the incubation process and the incubation process was extended to exit management (Blok *et al.*, 2017; Patton *et al.*, 2009). The role of incubator manager was highlighted. Evaluation and monitoring between incubators. It is included their self-evaluation and monitoring, as well as the coordination of the external network. The impact of incubator managers and their relationship with incubatees in the process were also reported (Rice, 2002). Moreover, the elements of the BI process were developed and further classified into soft and hard ones (Verma, 2004). Hard elements refer to the facilities and shared services supplied by an incubator, while soft elements include mentoring and networking, entry criteria and exit criteria (Verma, 2005). which the significantly increased number of business incubators after 2010, the services and support mechanisms provided by incubators were expanded. This resulted in a general and broader view of the incubation process, including three stages: 1) pre-incubation; 2) during incubation; and 3) post-incubation (Voisey *et al.,* 2013).

2.5.2 Business incubation process component

The incubation process and its components have been examined and reported in earlier studies (Barrow, 2001; Campbell & Allen, 1987; Gerlach & Brem, 2015; InBIA, 2018; Tavoletti, 2013). In addition to the area of relevance such as the industrial sector, the specific group of entrepreneurs were also taken into consideration, such as women and young entrepreneurs. Lists of success factors were proposed and balanced scorecards were developed based on the results to evaluate the performance of incubators (Caiazza, 2014; Messeghem *et al.*, 2018; Torun *et al.*, 2018). Some of the studies identified the hard- and soft-core elements of the incubator to evaluate a business incubator (Voisey *et al.*, 2006), while others focused on the contribution of the incubation process to the creation of economic value (Albadvi & Saremi,

2006; Ayatse *et al.*, 2017; Burnett & McMurray, 2008; Hackett & Dilts, 2004b; Patton *et al.*, 2009; Peters *et al.*, 2004).

In the third generation, selection criteria and networking were the two main components reported in the BI process. The selection criteria included the categories of selection and evaluation criteria in the incubation process (Albadvi & Saremi, 2006). Several scholars have argued that the business incubation process should incorporate incubators' and incubatees' performance according to their goals in a more comprehensive manner. They highlighted the importance of identifying the differences between idea- and entrepreneur-focused incubatees during the incubation selection (Bergek & Norrman, 2008; Soltanifar *et al.*, 2012). Scillitoe & Chakrabarti (2010) summarised the findings of Bergek and Norrman's research. They suggested that the incubator should align its assistance and support activities with incubatees' needs and resources (Grimaldi & Grandi, 2005). The importance of integrating incubator and incubatees' perspectives, as well as components of BI process varying in incubatees' business had been stated in the previous studies. However, there is not empirical study conducted to fill the gap.

Moreover, there are a series of BI models reported which identified steps, especially in the no-profit incubator. Voisey *et al.* (2005) undertook a case study of university incubators regarding incubatees' experience, as a result of which they developed the "ladder of incubation" framework. It was stated that an incubator programme should include collaboration with other stakeholders to build both long-term relationships and a sense of community. Those stakeholders may include banks and investors, industrial representatives, the authorities, the universities and entrepreneurs (Aerts *et al.*, 2007; Barrow, 2001; McAdam *et al.*, 2016; Mian, 1996; Smilor, 1987b). Universities were said to connect with other interested parties and the rest of society to facilitate the growth of their start-ups (Karatas-Ozkan *et al.*, 2005). Karatas-Ozkan *et al.* (2005) identified two different approaches adopted by university incubators, namely activity based and client based. The activity-based type focused on developing different entrepreneurial practices, such as obtaining business support, developing networking opportunities and securing finance. The client-based approach focused on targeted customer groups to develop the incubator's network for the corporate venture (Karatas-Ozkan *et al.*, 2005). McAdam *et al.* (2016) specified that the incubation

process was influenced by “1) the macro-environment of a regional-based incubator; 2) the meso-environment of an organisation-based incubator; and 3) the micro-environment of a university incubator”(p.71). They found that the university incubation process depended on the amount of government funding, the nature of the university and internal mechanisms. Hassan (2020) wrote, in his paper about the study of university incubators that these incubators’ initiatives have changed from non-profit to profit-seeking to increase the level of competitiveness by incorporating “quality of research, education and linkages to industries and entrepreneurs”. Having reviewed the literature it became apparent that the research on university-based incubators for design students or design graduates was limited.

Becker and Gassmann (2006) proposed a four-phase incubation process model that includes four main elements and focuses on the management of incubators and incubatees. Other studies contended that the internal and external relationships of the incubation process and its influence thereon were also important (Burnett & McMurray, 2008). Hallam and Devora (2009) formulated a nine-step checklist of BI development in the university-based incubation process following an examination of private, university and government technology incubators. This nine-step development process involved three rounds of development. The first round was similar to that of the incubator’s selection process (Blok *et al.*, 2017), while the second round pertained to the technology that had been launched in the market, and the third was about the continuation of the incubator programme.

To conclude the review of the previous studies on the components of BI processes, three gaps were defined. Firstly, although studies which focused on the university-based incubator were found, there was no evidence of a specific business incubation process for government-based incubators. Secondly, the majority of the research reported on the subject of the above BI processes were based on new technology-based firms. It is therefore suggested that business- and technical-related assistance are important components of the BI process and incubators should provide different services to their incubatees to ensure the success of the business incubator (Gerlach & Brem, 2015). However, Gerlach and Brem (2015) stated that the BI process “only focuses on specific incubator types such as technology or corporate incubators” (p.288) and omitted to provide any holistic view of the BI process (Becker & Gassmann, 2006). In this instance, it was considered to be necessary to modify the existing BI process to

accommodate the needs of a specific industry (Wiggins & Gibson, 2003). Thirdly, earlier research was somewhat inconclusive on the subject of the BI and the stages of evolution of the same. To establish a comprehensive understanding of a BI process, the important components of it are discussed and summarised in six categories in the following section, including a resultant proposed process mechanism.

2.6. Six categories of the business incubation process

Through reviewing 24 papers related to business incubation as the result of systematic literature review, six categories of the BI process were identified (Table 2.6). They are: 1) selection process; 2) infrastructure; 3) financial support; 4) business service support; 5) networking; and 6) entrepreneurship training. Each category is reviewed and discussed in detail in the following sections.

Table 2.6 First codes of six categories of the business incubation process based on literature review

No.	BI process categories	Description	Main Elements (First codes)	Authors
1	Selection process	Concise programme information and procedure with clear policies	• Selection criteria • Exit policy	Ayatse *et al.*, 2017; Blok *et al.*, 2017a; Burnett and McMurray, 2008; Campbell, 1989; Hughes *et al.*, 2007; Iyortsuun, 2017; Sherman and Chappell, 1998; Wiggins & Gibson, 2003
2	Infrastructure	The location should be convenient and easy to access	• Location • Facilities	Aerts *et al.*, 2007; Allen & McCluskey, 1991; Barrow, 2001; Bergek & Norrman, 2008; Gerlach & Brem, 2015; Grimaldi & Grandi, 2005; Lalkaka & Bishop, 1996; McAdam & McAdam, 2008; Rice *et al.*, 1995; Robinson & Stubberud, 2014; Smilor, 1987a, 1987b
3	Financial support	The provision of financing	• Finding investors • Use of funding	Allen, 1985; Allen & McCluskey, 1991; Amezcua *et al.*, 2013; Barbero *et al.*, 2014; Campbell, 1989; Cooper, 1981; Franco *et al.*, 2018; Hisrich, 1988; Lalkaka & Bishop, 1996; Melati *et al.*, 2018; Mian, 1997; Robinson and Stubberud, 2014; Rothaermel & Thursby, 2005; Schwartz, 2009
4	Business service support	Quality of incubator management, including staff	• Mentoring • Milestone assessment	Aerts *et al.*, 2007; Autio & Klofsten, 1998; Barrow, 2001; Bergek & Norrman, 2008; Chan & Lau, 2005; Hackett & Dilts, 2004b; Hansen *et al.*, 2000; InBIA, 2018; Mcadam & Marlow, 2007; Rice *et al.*, 1995; Robinson & Stubberud, 2014; Smilor, 1987b; Voisey *et al.*, 2006
5	Networking	Provide good internal and external networks and contact resources to incubatees	• Internal networking • External networking	Akbas *et al.*, 2016; Hansen *et al.*, 2000; Honig & Karlsson, 2010; Lee and Jones, 2008; McAdam, 2004; Perdomo *et al.*, 2014; Rice *et al.*, 1995; Smilor, 1987b; Verma, 2004
6	Entrepreneurship training	Sufficient to provide appropriate entrepreneurship and business skills to incubatees	• Business training organised by incubator	Campbell, 1989; Dobson *et al.*, 2018; Hackett & Dilts, 2004b; Hannon, 2003; Voisey *et al.*, 2005, 2006, 2013; Wiggins and Gibson, 2003

2.6.1 Selection process

It is important to apply a feasible business model of selecting incubatees with the aims of establishing and sustaining incubatees' businesses after their graduation from the programme (Ali, 2020; Werthes *et al.*, 2017). To avoid bias in a selection process, a well-organized series of steps for both the selection process and criteria are crucial (Lindelöf & Löfsten, 2004). The modes of selection processes were reported in previous studies. Hackett and Dilts (2004a) suggested using the black-box concept to select incubatees. Their recommendation was to provide series of screening steps for the development of business activities, before entrepreneurs were admitted to the programme. Aerts *et al.* (2007) identified the following criteria for the selection screening process of applicants: market factors, management team and financial factors. Bergek and Norrman (2008) suggest two basic approaches for the selection process, these being "picking-the-winners" and "survival-of-the-fittest", which would result in a focus on either the entrepreneur or the business idea. Patton *et al.* (2009) propose "picking the winners" as being a key point in the selection process to identify high-potential incubatees. Their rationale was that it would avoid the possibility of the wrong candidates enjoying the incubators' resources. Although diverse modes of the BI process have been reported, it is hard to synthesize them into a standard one.

In the case of the BI process, the results of selection criteria supplied in reports of previous studies are clear and explicit. There are mandatory criteria reported (Bergek & Norrman, 2008; Hackett & Dilts, 2004a; Peters *et al.*, 2004; Verma, 2004). These criteria include financial factors such as debts and assets, liquidity, profits, business plans and operating expenses to select entrepreneurs (Lumpkin & Ireland, 1988; Smilor, 1987a), entrepreneurs' work experience, market success and product characteristics (Hackett & Dilts, 2004a).

The normal purpose of a selection process is to help incubators find incubatees with a high potential for growth to increase the incubator's success rate (Aerts *et al.*, 2007; Agnete *et al.*, 2011; Blok *et al.*, 2017; Bruneel *et al.*, 2012; Hannon, 2003). In terms of strategy, Wiggins and Gibson (2003) found that incubatee selection must be rational and attention to detail should be given in every process, including "application, recruitment, due diligence, selection, induction and orientation" (p.63). All the selection criteria should contribute to the probability

of incubators' success (Bergek & Norrman, 2008; Buys & Mbewana, 2007; Franco *et al.*, 2018; Hackett & Dilts, 2004a; Smilor, 1987a).

The selection process and criteria are also influenced by the features of a start-up business, such as business nature, capital investment and operational expenses (Franco *et al.*, 2018; Lalkaka & Bishop, 1996). These features are related to the relevant roles and their contributions in the selection process, which are deemed crucial. These roles include those of the selection committee, start-ups and incubators. The selection committee's role is determined by whether they are generalists or specialists who focus on market-related or personal characteristics (Vanderstraeten & Matthyssens, 2012).

It has been suggested that incubators should classify their incubatees' enterprises according to industry type to avoid undue competition in the same field and to enhance synergy among incubatees in each industry (Tötterman & Sten, 2005). The ideal mix of selected incubatees should be from different sections of the value chain and diverse life cycles to maximise the benefits that can be gained from interaction and collaboration between tenants and incubatees. Vanderstraeten and Matthyssens (2012) discovered that the selection criteria should include the start-ups' willingness to interact with incubators. Most of the research studies that investigated the selection process criteria focused on the incubators' functionality (Bruneel *et al.*, 2012) and ignored the matter of interactions with incubatees. Other researchers found that it was problematic to select incubatees when using a pool of options in the admission criteria based on Hackett and Dilts's real options theory (Hackett & Dilts, 2004a), which Ahmad (2014) ascribes to the different incubatees, firms and markets that the incubators served.

Exit policy is another crucial element, which links to selection process and criteria. The exit policy, which occurs at the end of the incubation period, depends on whether the incubatees are eligible to graduate from the programme, and the criteria for such graduation and whether the incubatees can successfully sustain their business and no longer need the incubator's support (Mian, 1997; Verma, 2004). Researchers have suggested that the entry and exit criteria specified in the incubation programme should be clear, unambiguous and transparent (Ayatse *et al.*, 2017; Burnett & McMurray, 2008; Hackett & Dilts, 2008).

To summarise, there are two main areas of focus in the selection process, namely incubatee selection criteria and exit policies. Firstly, there is no standard selection process for business incubation, but the process could be divided into two parts, these being clear selection criteria and the incubatee's industry sector. The incubators' selection criteria should incorporate clear and transparent application requirements that should be conveyed to potential incubatees in advance. Further to this the incubatee's business type and industry sector can influence the design of selection criteria and process. Secondly, incubation programmes should have a clear and transparent exit policy to assess incubatees' success and the incubation programme's effectiveness.

2.6.2 Infrastructure

It is well recognized that infrastructure with shared facilities was the main means of assisting new start-ups in the BI process. Generally, infrastructure was in the form of incubation centres which were situated in different locations but connected with cities' business centres. Besides the venue, infrastructure shared by the incubators supplied various services and facilities, such as office equipment, working space and in-house support (Aerts *et al.*, 2007; Allen, 1985; Barrow, 2001). In recent years, virtual incubators have emerged to offer co-working space and accelerators were subsequently established as the extension of incubation process (Pauwels *et al.*, 2016; Von Kortzfleisch *et al.*, 2013). Considering the physical infrastructure support provided by business incubators, the seven forms proposed by Štefko and Steffek (2017) may be seen as comprehensive. These relate to both physical space and supporting facilities. Physical space refers to 24-hour access to the centre, meeting rooms/conference rooms for both incubatees and non-incubatees, laboratory space and working alone/private space. Supporting facilities include high-speed internet, printing and copying, and individual key access.

In previous studies, the infrastructure of BI for the creative industries was also discussed. It was argued that infrastructure was one of the problematic factors prevalent in the case of the BI for creative industries since some incubators had no or inadequate infrastructure for start-ups in the creative industries (Maryunani & Mirzanti, 2015). Since the location of incubation centres was linked to the business networks between incubatees and the markets (Comunian *et al.*, 2010), convenience of transport was crucial. In this case, urban policy stakeholders

suggested that soft infrastructure was a determining factor in the industrial network of creative industries, notably "quality of life, urban or rural atmospheres, the level of diversity of the population, tolerance, networking quality, the existence of sector-specific networks, and the image or reputation of a city or region" (Werthes *et al.*, 2017, p. 4). These reviews of locations for creative start-ups indicate the relevance of retail stores' presence as they attract visitors and guests, which was a vital element of business centres' location (Gatfied & Yang, 2006).

However, these studies mainly focused on the arts related sector in creative industries, rather than the design sector. The above elements of infrastructure support were not aligned with the demands and needs of design start-ups in different design disciplines. These measures of support varied from office setting to office setting (Fong, 2020). Unlike technological companies or artists that may need laboratories or art galleries, design companies such as graphic design, multimedia design and product design may not require laboratories, retail spaces, galleries or exhibition areas for testing and prototyping. Thus, incubators should not only offer hard infrastructure such as shared-office space, laboratories and research equipment, but should also provide soft infrastructure to build and develop internal and external networks with other stakeholders. Those stakeholders may include lawyers, customers, venture capitalists, local universities, industry contacts, the incubator manager and staff as well as angel investors (Hackett & Dilts, 2004a; Kitagawa & Robertson, 2012; Mungila Hillemane *et al.*, 2019). An understanding of how business incubator provides infrastructure to incubatees in design sectors is therefore required.

To summarise, business incubators' provision of infrastructure to designer incubatees entails two main elements. These are, firstly, the location of the office, infrastructure and office equipment, which are important when examining whether the incubator centres are easy to access and provide the necessary equipment to the incubatees. Secondly, both soft and hard infrastructure should be taken into consideration for design start-ups. Design start-ups have their own unique business natures and specific needs in respect of equipment, and incubators should perhaps be tailor made for different design start-ups.

2.6.3 Financial support

Financial support offered by incubators is influenced by the source of funding and the method whereby it is distributed (McAdam, 2004). This implied two main elements of financial support, specifically, the way of connecting to possible financial funds, and financial management of an incubatee. Studies found that designers may need space to perform experiments, explore business opportunities and connect with other stakeholders. Funding support for those resources may result in lower risks and reduced costs of product development (Pratt & Jeffcutt, 2009). Thus, financial support, provided not only by incubators but also through social interaction with other interested parties such as angel investors, may enhance business relationships and even result in additional financial support (Lee & Jones, 2008; Maula *et al.*, 2003). Funding support relates to links with investors, legal consultants, bankers and accountants providing financial counselling (Bacalan *et al.*, 2019; Bruneel *et al.*, 2012; Grimaldi & Grandi, 2005; Voisey *et al.*, 2013). Patton *et al.* (2009) proposed that incubators should help start-up firms to get connected to funding agents, having noted that funders are amenable to and capable of investing in hi-tech firms despite the attendant risks. If a start-up achieved the above success determinants it would be considered as being successful (Chaston, 2008). Although some of the research found that design entrepreneurs may not be all that interested in the business side of their activities, it is interesting to understand incubators and incubatees' views about financial management (Chaston, 2008; Štefko & Steffek, 2017; Werthes *et al.*, 2017).

Besides the amount of funding, the ease of accessing funding is another essential issue for incubatees when they are searching for venture capital and extra funding to develop their businesses (Mian, 1997). The period of incubation determines the amount of incubators' funding given to incubatees and the financial support, in turn, is affected by the incubatee's current business development stage (McAdam *et al.*, 2016). The purpose of funding is to secure a firm commitment from investors, be they from the public or private sector (Allen & Weinberg, 1988).

Financial support also means in-kind financial support, which includes administration and office and equipment rental that helps with curbing costs (Smilor, 1987a). However, due to the different business types of incubatees, Rice *et al.* (1995) suggested incubators services

should be personalised. Incubatees find it difficult to attract additional funding or secure investors because they have limited connections within their professional sphere, especially in respect of external funding (Kroll & Liefner, 2008; Tang *et al.*, 2014). Hackett and Dilts (2004b) also argued that the incubator may make unwise and politically sensitive decisions because of a limited network of connections. As a result, their business results could be prone to subjectivity with concomitant detrimental effects. Voisey *et al.* (2005) suggested that incubation managers must have entrepreneurial knowledge as it would enable them to provide incubatees with the required information on funding support. It is therefore necessary to understand how incubatees in the design sector find additional funding and how incubation managers help them to find investors or establish links with other external stakeholders or investors.

In summary, the important elements of incubators' financial support service include legal services, financial consulting, connections with bankers and investors and information on sources of funding. The two main issues that emerge in this regard are, firstly, that incubators should facilitate incubatees' linkages with angel investors, legal consultants and bankers to obtain support and business knowledge from them. Secondly, incubatees should get access to funding easily. Therefore, 'use of funding' is concluded with the above two points. Funding should also be specialised for their respective types of design business.

2.6.4 Business service support

Besides financial support, mentor and advisor are the two main parts of business service support to incubatees. They included mentoring, business plan development, expert advice and entrepreneurial training to improve entrepreneurs' business skills (Barrow, 2001; Chan & Lau, 2005; Lalkaka & Bishop, 1996; Ratinho *et al.*, 2013). These forms of assistance facilitate incubatees to connect with industry experts, investors and other business stakeholders with the aim of identifying business opportunities and finding external funding.

Mentorship coaching was a crucial element of business support services (Vanderstraeten & Matthyssens, 2012) . It was suggested that the incubation manager should act as a mentor to advise incubatees (Hannon, 2003; Voisey *et al.,* 2005). Supplied by the incubator, the mentorship also represented incubator's co-production entrepreneurial attitude, which affected incubatees' motivation and willingness to engage in the business (Rice, 2002). Based

on a study of entrepreneurs' learning process, Cope and Watts (2000) identified the mentors' two primary roles. One was to understand the challenges faced by entrepreneurs, to create an ambience in which entrepreneurs would feel comfortable to talk, and to assist them. Another role of a mentor was "bringing forward" the experience of the entrepreneurs. It included understanding of what had happened in the past, where the company was in the present, and how to avoid certain critical incidents in the future. However, such a group of mentors who could help entrepreneurs by giving them practical and real-life advice was difficult to find.

It was suggested that an incubation manager played the role as mentor and advisor to linking incubatees with service and support. Allen and Rahman (1985) listed seven types of enterprise services offered to incubatees, namely legal matters, intellectual property, accounting, book-keeping, recruitment and staff selection, education and training, and IT and internet services. Barrow (2001) expounded these services by stating that legal matters involved "partnership agreements, registering companies, preparing contracts of employment, drafting confidentiality agreements, vetting leases, filing patents, registering designs and licensing technology" (p. 168). He discovered that it was impossible for an incubation manager to advise incubatees on all these matters. The incubation manager should offer a network of law firms and accountants to provide these specialised services to incubatees, dispensing guidance and acting as mentors.

The absence of the BI process to help incubatees find suitable professional mentors has been identified as a problem by previous studies. Experienced incubatees in the same field or industry could act as mentors to incubatees. It was found that such experienced incubatees, who were still tenants at the incubator and had several employees, may have dominated the incubatee community (Tötterman & Sten, 2005). It was suggested that role models and faculty members in university-based incubator programmes would be capable of inspiring incubatees to become successful entrepreneurs (Jansen *et al.,* 2015). Given that mentors and incubator managers can also add value by giving incubatees guidance, it is suggested that communication with incubatees should be maintained to ensure they learn from a "build-test-learn cycle" during the incubation process (Brun, 2019).

Although many studies determined mentoring and business consulting as being important elements of the incubation process, there is a dearth of research studies that actually evaluate the functionality of the mentoring system, selection of mentors, quality of mentors and its effectiveness in the incubation programme (Klaasa & Thawesaengskulthai, 2018; Korreck, 2018). It is therefore necessary to review the current system of incubators in respect of mentorship and how the business support services can benefit incubatees in the design sector.

Incubation managers could provide coaching sessions to incubatees to assist in solving their business problems as mentors (Bruneel *et al.*, 2012). Carey and Naudin (2006) found that business mentors must have a thorough understanding and knowledge of the relevant sub-sector in the creative industry. Mentors are expected to help incubatees define their business models during the pre-incubation stage and to connect with other potential clients. Mentors' performance should constantly be evaluated by the incubator management and they should assist incubatees in commercialising their products or services (Pauwels *et al.*, 2016). Other research found that incubatees who had graduated from incubation programmes could act as mentors for the new incubatees, thereby creating an "entrepreneurs' ecosystem" in the programme (Collins, 2015). Collins (2015) proposed that such a mentorship ecosystem should include four stakeholders: "SME/start-up founders, intellectual property/legal firms, universities' research and commercial operations, and university academics" (p.261).

Professional business advisers could be classified into three types, namely incubators' staff members, experienced entrepreneurs and staff members of external professional organisations such as government organisations, universities, accountancy bodies and financial institutions (Romein & Trip, 2017). The experienced entrepreneurs and graduated incubatees have applicable knowledge and experience at their disposal. They have undergone the whole business development process of a start-up and can share their experience with the new incubatees. These kinds of interactions facilitate the exchange of knowledge and enhance business growth (Hackett & Dilts, 2008; McAdam *et al.*, 2016; Wonglimpiyarat, 2016). Post-graduation follow-up mentoring for incubatees was necessary to prevent incubatees' firms from declining once they had left the incubator (Schwartz, 2009).

Another important element in the array of business services and support is milestone assessments. Incubators that have clear milestones can learn from difficulties and measure

their performance to develop metrics of success (Somsuk & Laosirihongthong, 2014). These assessments aimed at monitoring the progress of incubatees' business growth. Concise milestone assessment with clear policies and procedures were the determining factors of an incubator's success (Bacalan *et al.* (2019). It was suggested that milestone assessments for design-centred businesses should cover the whole spectrum of entrepreneurship development, namely from conceptual ideas to the venture itself (Goldsby *et al.*, 2017).

In summary, the business support services include two main elements: firstly, mentors should provide industry-specific knowledge to incubatees when dispensing advice on the latter's businesses. It is acknowledged that graduated incubatees can act as mentors for and provide business consultations to incubatees and that such mentors may contribute to the establishment of a consistent mentoring system for new incubatees in the BI programme. Secondly, milestone assessment is a key element to assess and monitor incubatees' performance. The incubation manager as a middleman, who should expose incubatees to networks with business partners and stakeholders to assist them with developing their businesses.

2.6.5 Networking

Business incubators deliver internal and external networking activities to enhance business opportunities among incubatees and other stakeholders (Bergek & Norrman, 2008; Brun, 2019; Bruneel *et al.*, 2012; Hackett & Dilts, 2004b; Hansen *et al.*, 2000; Lalkaka & Bishop, 1996; Patton *et al.*, 2009; Pauwels *et al.*, 2016; Peters *et al.*, 2004; Rice, 2002). These networking activities are presented to allow incubatees access to various resources like accountants, consultants and law firms (Barrow, 2001; Hackett & Dilts, 2004b; Sherman & Chappell, 1998), university resources (McAdam *et al.*, 2016; Mian, 1997; Voisey *et al.*, 2005), potential suppliers, customers and investors (Cooper *et al.*, 2012; Hansen *et al.*, 2000; Lalkaka & Bishop, 1996; Verma, 2004), and internal exchanges between incubatees (Smilor, 1987a). This type of networking was defined as "access to resources and acquisition of knowledge" (Hughes *et al.,* 2007, p. 157). Cooper *et al.* (2012) used a combination of network analyses to review the internal networks of 18 firms in an award-winning incubator. They examined the implications of the following networking constraints among incubators and incubatees: 1) physical

proximity; 2) life cycle adaptation; 3) social support; and 4) relinquishing control to shorten the distance.

Many studies highlight that effective networking in the incubation programme is a significant factor in ascertaining incubators' success (Aernoudt, 2004; Barrow, 2001; Buys & Mbewana, 2007; Hansen *et al.*, 2000; Johannisson, 2011), accelerating incubatees' business development (McAdam & McAdam, 2008) and triggering higher levels of social capital (Maula *et al.*, 2003; Tötterman & Sten, 2005). Mcadam and Marlow (2007) recommended that incubators should reinforce their social networks to secure support for both incubators and entrepreneurs. The research found that internal networking among incubatees' firms was essential to their ability to exchange information (Hillemane *et al.*, 2019). Scillitoe and Chakrabarti (2010) discovered that incubatees who enjoy networking interactions gain access to a large amount of current information. In addition, such networking opportunities may increase enterprise liaison within the incubatee's network and the role of the incubator may be as a mediator between industry stakeholders and incubatees to assist the latters' businesses. If incubatees are located in the same incubation centre, they may easily and conveniently share information, experience and knowledge (McAdam & McAdam, 2008).

An incubation manager should act as a mediator in the networking to foster business linkages between incubatees and industry stakeholders. However, they have been criticized in the past due to their lace of the requisite technical knowledge and understanding pertaining to the various sectors within the industry (Hannon, 2005; Rice, 2002).

External networks connect incubatees with universities, government and potential investors. In a university-based incubator, the external networking refers to an alumni community to communicate with external stakeholders (Hallam and Devora, 2009). Furthermore, access to external networks may have a positive impact on incubatees' enterprise development by allowing for entrepreneurial learning opportunities, acquiring external funding and resources (Blok *et al.*, 2017a; Bruneel *et al.*, 2012) and reducing the cost of searching for resources (McAdam & McAdam, 2008).

To summarise, there are two main elements of networking. Firstly, incubators should act as mediators in providing internal and external networking opportunities to incubatees in a

social context without duplicating resources. Secondly, a mix of diverse incubatees in the incubation centre may enhance synergy and business collaboration among incubatees.

2.6.6 Entrepreneurship training

The purpose of entrepreneurial training is to increase incubatees' trade knowledge (Barrow, 2001). Normally, the training topics are presented by experts, training agencies or consultants. Training programmes may include necessary knowledge in entrepreneurship, such as accounting, writing business plans, marketing, legal matters, advertising, management skills and applications for grants (Bergek & Norrman, 2008; Lalkaka, 2001; Mian, 1997; Pauwels *et al.*, 2016; Smilor, 1987b). These training programmes are considered important to the growth of incubatees' ventures since they provide participants with the necessary core entrepreneurial knowledge (Bruneel *et al.*, 2012; Hannon, 2003). Business training is one of the categories in the incubation process (Barrow, 2001; Bruneel *et al.*, 2012). Seminars, business training and other activities link incubatees to business partners, industry experts and potential investors and stimulate the business growth of incubatees' firms. Previous studies reported that the enterprise training provided by incubators, universities and agencies to nascent entrepreneurs are not well coordinated and often did not match entrepreneurs' expectations of and approach to enterprise development. Training programmes must be well coordinated to develop effective enterprise training for creative entrepreneurs (Mills, 2011).

However, it was reported that incubatees do not attach much importance to such training (Patton, 2014). This phenomenon were explained by several reasons, including the fact that incubatees may not willing to take advice from mentors (Lalkaka, 2001; Rice, 2002; Weele *et al.*, 2017); the incubator's networks may not be well established (Patton, 2014; Tötterman & Sten, 2005); and the incubator may not have a comprehensive understanding of incubatees' needs (Bruneel *et al.*, 2012; Ratinho & Henriques, 2010).

A recent study on incubators' assertiveness found that incubatees may not be aware of the formers' resource gaps. Such ignorance could result in incubatees not making use of the incubators' existing resources, including business training that can expand their enterprise knowledge (Weele *et al.*, 2017, p. 28). Consequently, attendance at such training sessions during the incubation process was recorded as relatively low (Patton, 2014; Patton *et al.*, 2009). Scholars found that incubators and incubatees have different perspectives on

incubation resources (Bruneel *et al.*, 2012; Schwartz, 2009; Schwartz & Hornych, 2010; Weele *et al.*, 2017). Although most of the entrepreneurs may not want to study entrepreneurship and would rather learn by doing, incubators maintain such training during the pre-incubation or incubation stages as a means to assess incubatees' business knowledge (Rice, 2002, p. 185).

When compared with studies on general entrepreneurial business, it may be seen that incubation training in the creative industry is under-researched (Mills, 2011). The competencies of creative professionals were classified into three categories, these being personal-social, methodological and professional (Mietzner & Kamprath, 2013). The content may include business administration, legislation, law, intellectual property rights and copyright, entrepreneurial thinking, and innovation management.

To summarise, one main point arises in respect of entrepreneurship training, which being, business training organised by incubator. It transpires that incubatees' expectations of entrepreneurial training are important and the incubatees should acknowledge the resource gaps that prevail during the incubation period. It is also related to incubatees' perception of the effectiveness of entrepreneurship training for design start-ups hinges on whether the training offered is related to their specific field of design.

2.7. Initial conceptual framework of the business incubation process

Based on explored and defined six categories of BI, an initial conceptual framework of the business incubation process for a non-profit incubator was developed (Figure 2.1). This framework comprises three main parts. The first part consists of two non-profit business incubators, government-based and university-based. The next part is the main incubation process, which includes the six categories: 1) selection process; 2) infrastructure; 3) business services and support; 4) financial support; 5) networking; and 6) entrepreneurial training. The exit policy, in which incubatees' performance and the progress of their business are monitored, is reported as the third part of the BI framework.

This is the first finding reported in this research. It includes the identified six categories of BI process and a framework to illustrate a linear process of an incubator. Since it is obtained based on previous studies, which mainly focused on non-design start-ups and were limited in

terms of the incubator's perspective, the six categories and the linear frame process also represent the BI process for non-design start-ups and are from an incubator's perspective.

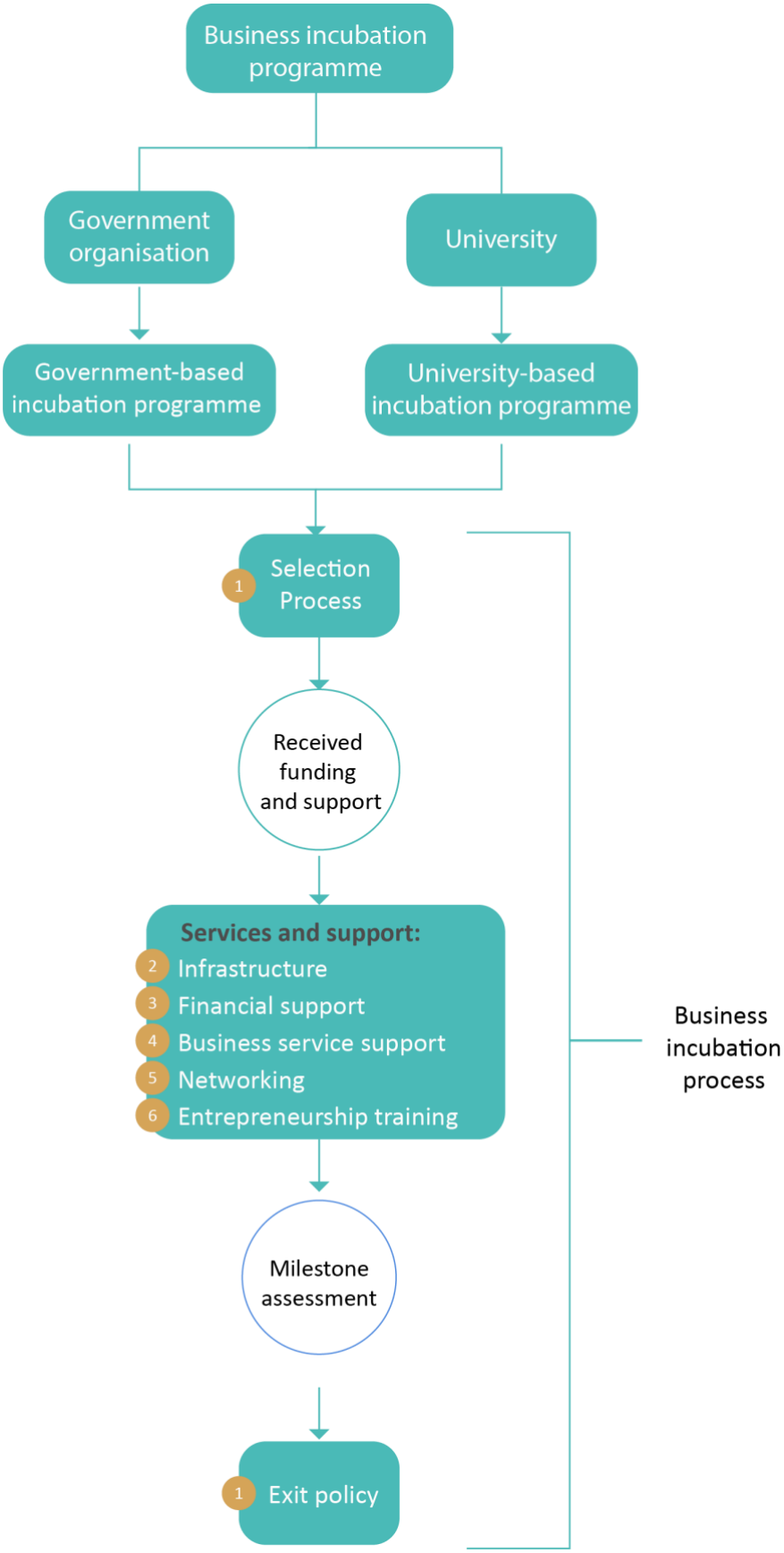

Figure 2.1 Initial framework of the BI process for design start-ups (Source: author's own)

2.8. Summary of literature on business incubation

The literature on business incubation was reviewed in this section and the historical background of the three generations of business incubator, definitions of business incubator and types of business incubators were discussed. University-based and government-based incubators have been defined as the scope of this research. The key elements of the business incubation process and its six categories were also discussed. An initial conceptual framework of the business incubation process, based on the business incubator literature reviewed, was presented. This framework was used as a guideline to develop and analyse interview questions and to direct the discussions in Chapters 4 to 7.

Business services and support, which include infrastructure, mentoring, financial support, networking and entrepreneurial training were shown as being core elements of business incubation. Incubators' selection criteria and pre-incubation training, used to identify incubatees who display a high potential of becoming successful entrepreneurs, were explained. Monitoring of incubatees' performance and the progress of their business ventures by means of milestone assessments and exit policies were discussed. It was highlighted that the evaluation of the incubation manager and the BI programme aims to improve the quality of the programme and to identify changes to be made, based on the survival rate or growth in turnover of the incubatees (Allen & Mccluskey, 1991; Rothaermel & Thursby, 2005; Schwartz, 2009). It was indicated that most of the BI studies only focused on the technology industry and that few studies concentrated on the design industry. The literature review on design start-ups was required to gain an understanding of design start-ups enrolled in business incubation. The next section focuses on the literature review related to design start-ups.

2.9. Design start-ups and its context

To establish an understanding of design start-ups in the context of entrepreneurship, a further literature search was conducted which involved an initial database of 698 papers about entrepreneurship. The keywords, including 'design start-ups' and 'design entrepreneurship' were used in the search. As the result, a total of 34 research papers found.

Of these, 24 are from SCOPUS and 11 are from WOS. Only one of these papers related to business incubation for design start-ups (Table 2.7). This confirmed that the subject of this study was under researched. In next section, the definition of a design start-up is further discussed based on the 34 papers.

Table 2.7 Summary of the literature on design start-ups

Keywords	SCOPUS	WOS	Total number of references from the two databases	Number of references after screening
"Design start-ups", "design start-ups" and "design entrepreneurship"	24	11	35	34
"Business incubation", "business incubator", "business incubators", "design start-ups", "design entrepreneurs" and "design entrepreneurship"	1	1	2	1

2.9.1 Definitions of design start-ups

1. Two approaches of defining start-ups

There are two approaches of defining start-ups, being general description and a process-view of entrepreneurship with the approach of the general description, the basic nature of a start-up is normally described as opposed to an established venture. For example, Blank & Dorf (2012) referred to a start-up as "a temporary organisation designed to search for a repeatable and scalable business model". Jonathan *et al.* (2017) defined start-ups as "young, innovative firms with growth ambition, often operating under conditions of significant uncertainty such as an unproven technology or a new business model" (p.11). From the approach of process view, the stages of the entrepreneurial business are described. Dee *et al.* (2015) considered four levels, these being: "1) pre-start-up; 2) start-up; 3) early-stage venture; and 4) late-stage venture" (p.15). In the pre-start-up stage, the entrepreneur only has an initial idea or sees the potential of developing the idea to create a new firm, but the idea still has to be developed and modified during this preliminary stage. In the start-up stage, the start-up is formed and receives funding but is not ready to offer a product to the market. In the third stage, the start-up is ready to launch its products but does not generate profits. In the final stage, the start-up has grown steadily, it may, or may not have proven itself profitable, and is intent on finding ways to increase its market share.

2. Definition of design start-ups

For the definitions of design start-up, Kim et al., (2018) defined design start-up as "a representative designer or a small number of people must be responsible for all the various tasks that a company faces" (p.3). They found that budgeting, accounting, strategic business planning and marketing are the main difficulties for design entrepreneurs to develop their business. According to Carland et al., (1984), an entrepreneurial firm was defined as 'profit-ability and growth and the business is characterized by innovative strategic practices" (p.358). They found that these firms have five categories in new goods, new methods of production, new markets, new sources of supply and industrial reorganization which Schumpeter (1934) mentioned. In this thesis, the terms are used in a similar way, with the emphasis on a design start-up: a start-up firm established by designers (who) implement their innovative ideas into the business through the design process. The nature of design start-ups determines the entrepreneurial identity of design entrepreneurs. This sets them apart from other entrepreneurs.

3. Design entrepreneur

Design entrepreneurship is defined as the business process and opportunities of designers who have established their firms and are exercising their entrepreneurial skills (Gunes, 2012). It was suggested that managing and leading a new design enterprise should incorporate the very use of design creativity in those two parts of the business. Designers who are intrinsically motivated to make every effort to achieve business growth (Aakko & Niinimaki, 2018; Gurova & Morozova, 2018; Rae, 2012; Skov, 2002) and design strategies (Zurlo & Cautela, 2014)

The characteristics of design entrepreneurs have been studied to distinguish them from other entrepreneurs. According to O'Grady (2012), both have learnt how to solve the complex problems related to the creation of new businesses and new products or services. However, designers often initiate an innovative idea based on their intuition rather than by planning (Cross, 2001; Dorst, 2011; Luh, 1994), and they are employed by financial, marketing, manufacturing, trading and branding companies (Hartley *et al.*, 2013). However, some studies reported that design entrepreneurs struggle to find their entrepreneurial identity when they consider the business value to be contradictory to their creative value (Werthes *et al.*, 2017). Designers have the vision to translate the characteristics of the products they have

designed into marketable items, but they need to achieve a balance between the business value and their creative value. Designers have their own, unique characteristics and values, one of which is that they often are not constrained by the limitation of the economic value of their products or businesses when making their social contribution to society (Banks, 2006; Werthes *et al.*, 2017; Teixeira, 2010). In addition, they often challenge traditional methods and propose new and innovative ways of reaching business solutions.

Designers can in effect build their own entrepreneurial identities. Werthes *et al.* (2017) summarised design entrepreneurs' identities according to the following three elements: 1) communicating with other entrepreneurs; 2) self-reflection; and 3) their own core value realisation. Those responsible for the organisation of entrepreneurship programmes for designers should meet the latter's unconventional needs as they are essential to designers when developing their entrepreneurial identities. However, this thesis does not focus on either the designer's or the entrepreneur's identity.

2.9.2 Context of deign start-ups: Cultural and Creative Industries (CCI)

The design industry is one of the categories within the broad sphere of cultural and creative industries. The term CCI is widely used by researchers in the United Kingdom (UK), and it is referred to the UK's Department of Culture, Media and Sport as "those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property" (DCMS, 2019). The original definition was founded in the theories of economic and regional culture (Cunningham, 2006; Hartley *et al.*, 2013; Howkins, 2002). However, the above definition cannot be applied to any specific design industry because it encompasses thirteen sub-sectors, namely "advertising, architecture, the art and antique market, crafts, design, designer fashion, film and video, interactive leisure software, music, the performing arts, publishing, software and computer games, television and radio" (DCMS, 2019). Various sources referred to the definitions that applied 'creativity' to all industries or sectors (Potts, 2006). Potts argued that such use of the term was unacceptable because it ignored the industry classification and could too easily and inappropriately represent mass production and digital technologies. In Hong Kong, the Hong Kong Government defined cultural and creative industries using 11 components, which are as follows (CSD, 2020), as shown in Table 2.8.

Table 2.8 The eleven CCI clusters in Hong Kong

Advertising	Amusement services	Architecture
Art, antiques and crafts	Cultural education and library, archive and museum, services	Design
Film, video and music	Performing arts	Publishing
Software, computer games and interactive media	Television and radio	

In the current economy, various governments recognise that the creative industries can make a contribution to future economic development and consequently allocate funding to promote both the creative industries and innovative enterprises (Bryson & Rusten, 2011; Franco *et al.*, 2018; Werthes *et al.*, 2017). According to the DCMS (2019), the UK government invested 250 million pounds sterling in this sector to develop creative businesses and to stimulate their potential contribution to the country's economic growth. For example, in the UK, this sector's contribution to gross value-added rose to 14.6% in 2017 (a year-on-year increase of 3.4%) and the employment figure increased by 2.3% from 2016 to 2017, rising to 15% in 2019. The UK government has supported creative industries by means of entrepreneurial support programmes which are aimed at driving the country's economic growth by assisting creative practitioners in setting up their businesses (Cunningham, 2006; Munro, 2017; Oakley, 2006). Nesta (2019) estimated that 900,000 new creative jobs would be created between 2013 and 2030. According to Nesta (2019), the number of new creative businesses formed was also increasing, some 90,000 having been established in 2015-2016. The CCI has also played an important role in European countries in terms of economic growth, job creation and foreign trade. The European Union (EU) CCI's contribution to trade in cultural goods increased from EUR 8.4 million to EUR 8.7 billion from 2011 to 2016, and it was estimated to contribute 4.2% to the EU's gross domestic product (European Commission, 2018).

The number of persons engaged in the cultural and creative industries in Hong Kong rose from 212,820 in 2016 to 217, 280 in 2018, the average annual increase in employment of that

sector being 5.6% for the preceding 10-year period (Figure 2.2). A report by Census and Statistic Department (CSD, 2020) revealed that the design sector was playing an essential role to stimulate economic development and add value to products. The GDP contribution of the design industry increased from 3.9% in 2008 to 5% in 2018.

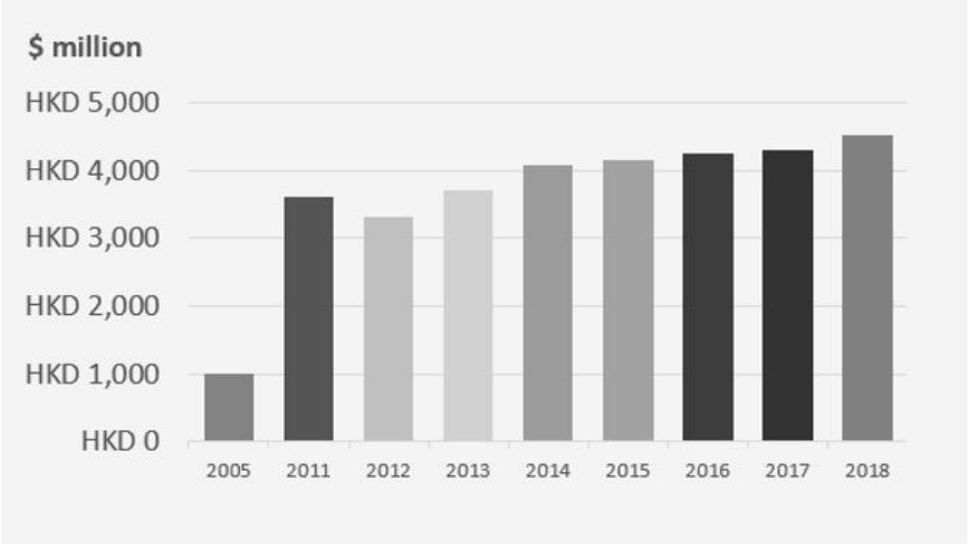

Figure 2.2 Value added at the current price in Hong Kong dollars by year in the cultural and creative industries in Hong Kong
(Source: adapted from CSD, 2020)

2.9.3 Business incubation for design start-ups

The recognition of the value of designers as new business founders has been increasing across the globe since 2010. In that year, 27 digital start-ups were established by designers. Some of them developed into leading companies such as Airbnb, Snapchat, Instagram and Tumblr. There has also been an increase in the number of companies having designers as business partners or co-founders in entrepreneurial practice. Designers not only supply innovative designs but also fulfil the role of business strategic partners (Muratovski, 2015). However, many designers still lack such skills and knowhow as economic knowledge, market trends and environmental aspects to manage their start-ups effectively and to increase the probability of securing investment in their businesses (Kim *et al.,* 2018).

Start-ups in the creative industries have made an increasing contribution to creative economic and economic growth (Breznitz & Noonan, 2018; Chaston & Sadler-Smith, 2011; Cunningham, 2006; Munro, 2017; Oakley, 2006; Porfírio *et al.*, 2018; Potts, 2009; Rae, 2004). This is fulfilled by the creative intermediaries such as innovation centres, creative incubators

and accelerators (Jakob & Heur, 2015; Munro, 2017). Business incubators were viewed as intermediaries set up by the government or private companies to help creative practitioners. What they "offer" and what do they "do" are the key areas (Jakob & Heur, 2015). However, it was found that these intermediaries caused the creative practitioners to become more "business-like." They are effective tools of economic growth rather than merely meeting their clients' needs (Munro, 2017). Studies of designers' identities suggested that they typically work independently and seldom have to share work with other designers in the design development process (Colombo *et al.*, 2017; Munro, 2017; Parsons, 2016).

Design industry is recognised as one sector of cultural and creative industries (CCI); however, it was still ignored in the industry and previous studies (Bilton, 2009; Hartley et al., 2013; Maeda, 2017). For example, in the John Maeda design and tech report (Maeda, 2017), over 70 design start-ups have been acquired since 2004 and such numbers of merger and acquisition activities are increasing in 2017. Many of these design start-ups were acquired by large corporations, such as Facebook, Adobe and Google. However, the report found that most of the design start-ups' founders claims that it is difficult to sustain their business. The top three reasons the design start-ups fail which are due to 'No market needed', 'Ran out of Cash' and 'Not the right team'. However, previous studies ignored design start-ups which play an important role in the industry. The report stated that design start-ups nowadays are important in the industry, companies' development, and the countries' economics. 80% of the designers claimed that they would start a business with funding. Therefore, business incubator, entrepreneurial programmes, creative hubs and accelerator funding are important to know how these programmes help designers to start their businesses.

Management training and finance capabilities of creative sector incubators were crucial to the success of incubatees (Franco *et al.*, 2018). Furthermore, creative incubatees also could benefit from incubators' brand image and infrastructure. Nevertheless, it is incumbent upon incubators to improve their services and support constantly to meet incubatees' needs amidst changing economics and business models. The support services offered by the incubator directly impact the feasibility of its entrepreneurial ventures. There are four interrelated factors to explain how the incubator's facility (hardware) relates to the creative economy (Comunian *et al.,* 2010). The four factors are: 1) infrastructure; 2) governance; 3) soft

infrastructure; and 4) markets. However, those studies only investigated incubators' perspectives and incubatees' perspectives were not taken into account (Franco *et al.,* 2018).

It should be noted that the terms 'creative entrepreneur' and 'creative industries' have not been fully studied in previous research (Bujor & Avasilcai, 2014; Chaston & Sadler-Smith, 2011; Lin & Cheng, 2013). Most of the previous studies viewed design thinking as a tool of the design process applied in business strategies or business education (Beltagui, 2018; Chou, 2018; Elsbach & Stigliani, 2018; Furue & Washida, 2017; Glen *et al.*, 2014; Huq & Gilbert, 2017; Kleinsmann *et al.*, 2017; Nielsen & Stovang, 2015; Schumacher & Mayer, 2018; Tovey, 1986; Von Kortzfleisch *et al.*, 2013). It was stated that design competence was important and design thinking was one of the key components in developing a business (Blenker *et al.*, 2014; Chaston & Sadler-Smith, 2011; Shahverdi *et al.*, 2018; Von Kortzfleisch *et al.*, 2013). However, study on the subject of the professionalism of a university-educated, well-trained designer as entrepreneur has been limited (Min & Wilson, 2018). How designers could become entrepreneurs was not studied in the past research. This is the second research gap addressed by this study. To fill the main research gap defined in this section, the perspectives of both incubators and incubatees were studied in this research to understand the BI process for design start-ups.

2.9.4 Summary of literature on design start-ups

The literature on design start-ups, cultural and creative industries and business incubation for design start-ups was reviewed. It showed that the design industry was important to boost a country's economic growth and that it is therefore worthwhile studying how business incubators help design students and designers in terms of services and support in the business incubation process.

Four elements related to the literature regarding design start-ups were highlighted. Firstly, the definition for design start-ups was determined as start-up firms that are established by designers to implement their innovative ideas and turn them into businesses. Secondly, design start-ups in the cultural creative industries play an important role in countries' economic development. Thirdly, research on business incubation for design start-ups is limited and, finally, the training methods employed for designer entrepreneurs were seldom studied in previous research studies.

2.10. Research questions and objectives

Based on the results of the literature review, one main research gap was identified, that being, there are no frameworks of a BI process for design start-ups. This research gap resulted in the formulation of the main research question as follows.

Main Research Question:

What is the business incubation process for design start-ups?

The main question was further broken down into three sub-questions(SQ):

SQ1: What are the incubator's expectations of their design incubatees and the programmes?

SQ2: What are the design incubatees' expectations of their business incubators in terms of services and support?

SQ3: What are the key elements of the business incubation process for design start-ups?

Given the above research questions, the study targeted the following three research objectives:

1. To establish an understanding of both the government-based and university-based business incubator process for design start-ups.
2. To explore the business incubation process for design start-ups from two perspectives, these being, incubator and incubatees.
3. To develop a framework of incubating design start-ups by incubator with a process-based view.

2.11. Summary of the literature review

The literature review of this research mainly consisted of two parts, these being business incubation and design start-ups. The historical background of business incubator, its definition, the main types of business incubator and the process of business incubation were reviewed. As a result, six categories of BI were discussed and summarized based on a systematic review of 698 papers. Two types of business incubator, government-based and university-based, were selected to meet the research objectives of this study, since they are

non-profit business incubator and share common elements of BI. An initial framework of the business incubation process for design start-ups was developed, containing two types of business incubators and six categories in line with the business incubation process. Previous studies on BI were seen to be limited to the incubator's perspective and they did not include design start-ups. A perspective from incubatees, and studies on the subject of design start-ups, were the gaps identified as a result of literature review.

Definitions of design start-ups, in addition to the creative industries, were reviewed. It was revealed that as one sector of creative industries, design start-ups play an important role in countries' economic growth and development. Research on the business incubation process for design start-ups was found to be limited.

CHAPTER 3. RESEARCH METHODOLOGY

CONTENT

3.1. Introduction

In this chapter, the research approach and methods selection of this research, are explained. A qualitative approach comprising multiple case studies was applied to study the business incubation process of design start-ups. Two types of non-profit business incubator were selected as the cases to explore the common elements in the six categories of the BI process.

There are a total of five sections in this chapter. In the first section, the selection of the research approach and method is discussed. Secondly, the justification for the research design with multiple case studies is provided, followed by a section explaining case selection, samples definition and methods of data collection. The fourth section describes the data analysis procedures, including the use of the MAXQDA and ATLAS.ti software. The final section addresses the subject of research ethics.

3.2. A qualitative approach of multiple case study

3.2.1 Qualitative approach

It was shown that qualitative approach is the dominant one in the previous studies on BI. In the 25 top cited papers of BI reported in Chapter 2, qualitative approach is the most popular one (Table 3.1). Among all the 25 studies, five used the mixed-method of multiple-case studies; six applied a quantitative survey approach; and 11 used qualitative methods. The remaining three publications are theoretical discussion papers. Qualitative methods had been applied in half of these studies. This could be explained by the fact that BI is a novel topic and the main purpose of recent studies was to explore the framework of the new topic and define its boundaries. In this case, a qualitative approach was considered appropriate for obtaining rich description with the purpose of exploration.

In this study on the BI process for a design start-up, there is no existing framework which can be taken as the research basis due to the novelty of the topic.

Moreover, when reviewing the literature and considering the research approach for this study, it was found that an integrated perspective of an incubator and incubatees was lacking in previous BI studies. Of the 22 research publications (excluding the three discussion papers) reviewed, only four involved the incubatees' perspectives (Bøllingtoft, 2012; Bruneel et al.,

2012; Marlow & McAdam, 2012; Rice, 2002), while the other 18 publications focused on the incubators' perspectives. There is no literature was found to integrate the incubators' and incubatees' perspectives. As a result, this single perspective of the BI process in the previous studies was identified as a research gap. This research fills the research gap through integrating the two perspectives in the case study.

Table 3.1 Summary of the research approaches of the 25 cited studies on business incubation

No.	Author	Topic	Research approach	Research method	Research samples
1	Aerts et al. (2007)	Business incubators assessment	Quantitative	Survey	140 incubators
2	Autio and Klofsten (1998)	Technology business incubators assessment	Qualitative	Semi-structured interviews, observations	2 technology university-based business incubators
3	Bergek and Norrman (2008)	Business incubator assessment	Qualitative	Observations	16 incubators
4	Bøllingtoft and Ulhøi (2005)	Networked business incubator	Qualitative	Ethnographic research, including observations, participation in meetings and events	One networked incubator
5	Bøllingtoft (2012)	Business incubation process	Qualitative	Participant observation, focus-group interviews, in-depth interviews	4 incubatees (focus-group interview); 7 incubatees (in-depth interviews) (from IT, media and communication business incubators)
6	Bruneel et al. (2012)	The selection criteria and exit policy of business incubators	Mixed-method – multiple case studies	Survey and interviews	2 incubators in interviews and 71 incubatees in survey
7	Carayannis and Von Zedtwitz (2005)	Business incubation model	Theoretical	N/A	Virtual incubators
8	Chan and Lau (2005)	Technology business incubator assessment	Qualitative	In-depth interviews	6 technology business incubators
9	Fini et al. (2011)	The role of universities in incubators	Qualitative	Observations	64 university-based technology incubators
10	Grimaldi and Grandi (2005)	Business incubators assessment	Qualitative	Interviews	8 business incubators
11	Hackett and Dilts (2004a)	Business incubation process	Theoretical	N/A	N/A
12	Hansen et al. (2000)	Networked incubators	Quantitative	Telephonic survey and interviews	350 internet incubators, including 169 incubators via telephone interviews
13	Hughes et al. (2007)	Business incubation in networking	Quantitative	Survey	211 technology business incubators

Table 3.1(continued)

No.	Author	Topic	Research approach	Research method	Research samples
14	Markman et al. (2005)	University-based technology incubators	Qualitative	Interviews	128 university-based technology business incubators
15	Marlow and McAdam (2012)	Technology business incubation in gender perspective	Qualitative	Interviews	1 technology business incubatees
16	Mian (1996)	University technology business incubators	Mixed-method – multiple case studies	Survey and interviews	6 cases of university-based incubators
17	Mian (1997)	University technology business incubator assessment	Quantitative	Survey	30 university-based incubators
18	Mian et al. (2016)	Technology business incubation	Theoretical	N/A	N/A
19	Pauwels et al. (2016)	Business incubation model of accelerator	Qualitative	Semi-structured interviews and archival data	13 business incubators
20	Phillips (2002)	Technology business incubators assessment	Quantitative	Survey	34 technology business incubators
21	Ratinho and Henriques (2010)	The role of business incubators	Mixed-method – multiple case studies	Survey, telephonic interviews and public information	14 incubators
22	Rice (2002)	Business incubators and incubatees' relationships	Qualitative	In-depth interviews and two surveys, one for incubation managers and one for incubatees	32 incubatees in 8 incubators
23	Schwartz and Hornych (2010)	Business incubator in networking	Quantitative	Survey	150 incubators
24	Scillitoe and Chakrabarti (2010)	Business incubation process	Mixed-method – multiple case studies	Survey and interviews	42 incubators
25	Totterman and Sten (2005)	Business incubation in networking	Mixed-method – multiple case studies	Survey and in-depth interviews	3 non-profit business incubators

3.2.2 Multiple case study

Among previous studies applying qualitative approach, a multiple case method was the most popular, especially in the third generation of business incubator. In those studies, normally two to six cases were studied with data collected from semi-structured interview and other sources. For example, Autio and Klofsten (1998) compared two European incubators by using semi-structured interviews and participated in meetings and observations of start-ups' daily operations. They compared two cases in Finland and Sweden regarding incubators' similarities and differences to determine good management practices. Lourenco (2004) used the multiple case study method to reveal the nature of the communication networks among incubators and entrepreneurs and to compare their activities to discover how a business incubation process affects the creation of the communication network. Different types of business incubators were selected, supported by an explanatory approach. Chan and Lau (2005) used the multiple case study approach to collect data from in-depth interviews with the founders or entrepreneurs of technology incubators in Hong Kong. They conducted in-depth interviews with six company cases in different business stages development to develop an assessment model for a technology incubator. In the study of the business incubation process in the third generation of business incubator, Bøllingtoft (2012) used multiple case studies to examine the business incubation process among incubatees, encompassing participant observation, focus-group interviews and in-depth interviews with four incubatees. Gertner (2013) used three cases of incubators to study entrepreneurs' experience in the business incubation process by using semi-structured interviews. He used a thematic framework analysis to analyse the views and experiences of the incubation process among entrepreneurs by selecting categories and themes to identify differences between the cases investigated. He also employed a within and cross-case analysis approach to extend the findings and variations. Other scholars, such as Morrison (2014), used semi-structured interviews to answer their research questions, while convenience sampling was applied to find interviewees to participate in the research. Scholars such as Essig (2015), used the multiple case study approach to identify incubators' best practice in the arts sector. Essig developed a pilot study of the specific

type of incubators, provided a framework model for arts incubation and applied cross-case analyses to address similarities and differences between the different types of incubators. Al-Mubaraki et al. (2015) used the qualitative approach to examine incubators' success. They interviewed two types of incubators, private-based and university-based incubator, to identify categories of technology commercialisation, economics and entrepreneurship.

Besides the multiple case study method being the dominant research method of BI, another reason to use multiple cases studies is to establish a comprehensive view of the existing phenomena. With the multiple case study, an understanding of the real-world case was reached and important issues among the cases could be addressed (Yin, 2014). This research adopted Yin's multiple case study procedure (Yin, 2014). Being a qualitative study, qualitative data were gathered and analysed, new concepts developed, definitions for major constructs formulated and relationships between them considered (Neuman, 2011).

In this research, two typical types of non-profit incubators were selected as cases to study the common elements of BI in helping designers' start-up businesses. The two types were the government-based and university-based incubators, which all are non-profit incubators and support design start-ups. These two types of incubators have their specific participants, entry requirements, services and support with bounded system (Denzin & Lincoln, 2017; Merriam & Tisdell, 2015; Miles, 2020; Stake, 2006; Yin, 2014). The two cases are selected according to theoretical sampling strategy, instead of statistical sampling.

3.3. Selection of cases

3.3.1 Selection of two types of business incubators

According to the theoretical sampling strategy, the criteria of case selection were defined. The selection criteria were:

- Incubator that deals with the six categories of the business incubation process

- Non-profit based incubator
- One incubator specifically focusing on design industries
- One incubator that is university-based, with design incubatees
- With physical studios and facilities as infrastructure

Table 3.2 Classification of business incubators for designers in Hong Kong

Types of business incubator	No.	Name of programme	Organisation	Industries focus
University-based	1	China Entrepreneurship Fund	HKPolyU	All
	2	CityUE Investment Fund	City University of Hong Kong	Not specific
	3	CUHK PI Centre	Chinese University of Hong Kong	Not specific
	4	Entrepreneurial Knowledge Transfer Fund	Lingnan University of Hong Kong	Not specific
	5	HKBU Entrepreneurship Bootcamp	Hong Kong Baptist University	Not specific
	6	HKU Dreamcatchers Seed programme	Hong Kong University	Not specific
	7	InnoHub	HKPolyU	All
	8	Microfund	HKPolyU	All
	9	Student Early Entrepreneurship Development Scheme (SEEDS)	HKPolyU	New products or services
	10	Student Entrepreneurial Proof-of-Concept Funding Scheme	HKPolyU	All
	11	Youth Business Hong Kong	The HK Federation of Youth Groups	Not specific
Government-based	1	Design Incubation Programme	Hong Kong Design Centre	All design discipline
	2	Fashion Incubation Programme	Hong Kong Design Centre	Fashion design
	3	Hong Kong Business Angel Network	HKSTP	Not specific
	4	PMQ Hong Kong	Police Married Quarters	All design discipline with retail shops and design studios
	5	SME Development Fund	Trade and Industry Department	Not specific

With the selection criteria, a list of the business incubators for design start-ups in Hong Kong was compiled during the document review (see Appendix C), the key information is summarized in Table 3.2.

As suggested by Neuman (2011), purposive sampling was used to select the cases. The researcher used a wide range of methods to identify the specific types of cases best

suited to this study, which proved to be business incubators with a focus on design start-ups. Based on the literature review and the above criteria of incubators, two cases of business incubators were purposively selected. Two incubators were found to be best suited to achieve this study's objectives. They were Case A – 'Design Incubation Programme (DIP)' and Case B – 'Microfund'. The two cases were non-profit based, one being government based and the other university based. Both accommodated design incubatees. The main reasons for the selection of these two incubators are summarised in Table 3.3.

Table 3.3 The rationale for the selection of the two case studies

	Case A – DIP	**Case B – Microfund**
Industry	Design-based	Any discipline
Name of incubator	Design Incubation Programme (DIP)	HKPolyU Micro fund programme
Type of business incubator: Non-profit	Government-based, specialised	University-based, generalised
The rationale for selection as a case study	For all design start-ups from all design disciplines	For all disciplines and targeting both university students and alumni

Case A is Design Incubation Programme (DIP), a specialised incubator targeted at design sector start-ups and a government-based business incubator. Case B, the Hong Kong Polytechnic University's Micro fund (Microfund) is a university-based business incubator. It is a generalised incubator for all disciplines, inclusive of university students and graduates. It is the most suitable Hong Kong case to investigate because there is a design school with all design disciplines in the university.

3.3.2 Case A of government-based business incubator: Design Incubation Programme (DIP)

DIP is government-based and was the first business incubation programme for designers in Hong Kong. It was established in 2005 and is operated by the Hong Kong Science and Technology Parks Corporation, which was the first government-based technology incubator in Hong Kong (HKSTP, 2020). In 2012, this programme was transferred to the

Hong Kong Design Centre, one of the government organisations focusing on organising design workshops and activities, to operate the incubation programme and to manage the funding and operations of the incubation centre (HKDC, 2019a).

From 2005, the HKTPC launched DIP to provide funding, business services and support to local design start-ups. The local design start-ups included the following eight design disciplines: 1) Product design, 2) Fashion Design, 3) Jewellery & Accessory Design, 4) Branding, 5) Visual and Spatial Arts, 6) Media & Communication, and 7) Interior & Architecture. According to their record (HKDC, 2019b), from 2006 to 2019, 220 design start-ups (incubatees) graduated successfully from their two-year incubation programme. Of the design start-ups which graduated in this programme, 95% were still in operation in 2019. According to reports, from 2006-2019, the design incubatees received over 330 intellectual property rights applications and 310 local and international design awards.

DIP offers a two-year DIP incubation funding and business service and support to awarded incubatees. Each incubatee is entitled to up to HKD 500,000, including office rental subsidies, office space and up to 50% to 70% reimbursement for different funding for mentorship, marketing and promotion, entrepreneurship training and networking sessions. There are three different milestone assessments in the two-year period of incubation to assess incubatees' business development (HKDC, 2019a).It is noted that the amount of the funding was remain the same from 2005 to 2021.

To understand the operation and its BI process, background information of DIP was collected from multiple sources, including interview, archival documents, annual report and site observation. The basic information of Incubator and incubatees is introduced in following sections. A total of 18 design start-ups' incubatees (D1-D18) and one incubator's representative were interviewed either face-to-face or by telephone for a period of one to two hours each.

1. Incubator of DIP

An Incubation Director of DIP was invited for the interview to explore the topic from the incubator's perspective. The Incubation Director was responsible for the whole DIP operations and management for 10 years. Prior to becoming the Incubation Director, he had gained experience in a large corporations, and had specialised in industrial engineering.

The researcher contacted the incubator's representative and conducted a face-to-face interview. The interview was conducted for about two hours on 14 Dec 2019. All the interview data was audio recorded with his consent.

2. Incubatees of DIP

A total of 18 incubatees were selected as interviewees by means of snowball selection. They were from four design disciplines, namely interior design, multimedia/graphic advertising, fashion/jewellery design, and product/industrial design. Convenience sampling was used for conducting semi-structured interviews. The distribution of the design disciplines of the incubatees who were interviewed is shown in Table 3.4.

Table 3.4 Design disciplines of Case A's interviewees

Design discipline	Number of interviewees
1. Interior design	2
2. Multimedia/graphic advertising	6
3. Fashion/jewellery design	6
4. Product/industrial design	4
Total	**18**

Table 3.5 reveals the background information of each interviewed incubatee. Of the 18 incubatees, six had had start-up experience before joining the programme. They had either received funding or had worked in freelance design jobs. One had attained entrepreneurial knowledge from an institution, while others had either attended a business-related training programme or had a business degree. Most of them remained within the same design discipline they had studied or started.

Table 3.5 Background information of design incubatees - Case A

Incubatee	Design discipline	Start-up experience before joining the programme	Entrepreneurial knowledge	Work experience/educational background	No. of employees (including part-time)
D1	Multimedia/graphic advertising	Yes	No	Multimedia/graphic advertising	4
D2	Multimedia/graphic advertising	No	No	Multimedia/graphic advertising	4
D3	Multimedia/graphic advertising	Yes	No	Multimedia/graphic advertising	2
D4	Product/industrial design	No	No	Business development	4
D5	Fashion/jewellery design	No	No	Fashion/jewellery design	2
D6	Fashion/jewellery design	No	No	Fashion/jewellery design	2
D7	Interior design	Yes	No	Interior design	4
D8	Product/industrial design	No	No	Multimedia/graphic advertising	2
D9	Multimedia/graphic advertising	No	No	Multimedia/graphic advertising	10
D10	Interior design	No	No	Interior design	2
D11	Multimedia/graphic advertising	No	No	Multimedia/graphic advertising	3
D12	Multimedia/graphic advertising	No	Yes	Industrial design	2
D13	Fashion/jewellery design	No	No	Fashion design	2
D14	Product/industrial design	Yes	No	Industrial design	2
D15	Fashion/jewellery design	No	No	Fashion design	3
D16	Product/industrial design	Yes	No	Industrial design	5
D17	Fashion/jewellery design	Yes	Yes	Fashion design	3
D18	Fashion/jewellery design	Yes	Yes	Fashion design	2

*D is represented case A- Design Incubation Programme (D), the incubatees' names were anonymous, which indicated by numbering 1-18. For example, D1 is one of the incubatees of DIP.

3.3.3 Case B of university-based business incubator: HKPolyU, Micro fund (Microfund)

Microfund is an incubator located at a Hong Kong university. It was the first university to provide business incubation and funding services for its university students and alumni in the city (IFE, 2019). Funding is offered to both alumni and students to support them with both training and funding to establish their start-up ventures. This programme also offers shared office space to incubatees, which they may use during the one-year period of the funding.

The funding was launched in 2011, and this was the first funding at the university to promote knowledge transfer in innovation and technology at the Hong Kong Polytechnic University. The awardees were entitled to a sum of HKD 120,000, which provided the seed funding for them to commence their start-ups and develop their products and services.

There are two main themes of business in this Microfund, the first one being business or social innovation, and the second technology innovations. Students and alumni from HKPolyU can apply for this incubation programme within these two main themes of business. The main purpose of the funding is to stimulate students and young alumni to pursue their creative entrepreneurship through a series of training and business services and support.

The centre provided not only the funding but also services and support. Nine main items were included, as indicated below:

- Office premises
- Technology support
- Lab services
- Financial aid
- Multi-disciplinary entrepreneurship training
- Mentorship programme
- Networking opportunities
- Access to further incubation and funding support
- Professional service

The entrepreneurship training includes workshops, seminars and study visits, as well as professional advice from mentors, networking activities, and referral funding support services and advice to the incubatees. Those interested in the technology innovation theme could be admitted directly to the technology incubation programme from the Hong Kong Science and Technology Parks Corporation.

During the period 2011 to 2019, IFE supported over 270 start-ups. More than 60% of these start-ups were still operating three years after funding support. Over 7,600 entrepreneurs have been trained in the process (IFE, 2019).

1. Incubator of Microfund

The incubation manager of Microfund was invited to participate in a face-to-face interview. The researcher contacted the incubation manager by email. With substantial work experience in the field of international business, he has been responsible for the Microfund operations and management for over 5 years.

2. Incubatees of Microfund

Participants in design start-ups incubated by Microfund were selected as interviewees in this research. To define the scope of the incubators, the definition of the Hong Kong CCI was applied and this is provided in Chapter Two, section 2.9.2. Design start-ups within the four design disciplines categories were then selected, including 1) Interior and furniture design; 2) Multimedia, visual and graphic design; 3) Fashion and accessories (including jewellery design); and 4) Industrial design (including product design). Further to this, two criteria were developed to select the interviewees.

- The company had graduated from the incubator programme within one to ten years
- One of the founders had graduated from university or other tertiary institution with a qualification in design

According to above design discipline scope and selection criteria, 12 design start-ups (incubatees) from the programme were selected. Of these, four were from the discipline of Multimedia/graphic/advertising, four from Fashion/jewellery design, and four from Product/industrial design. It transpired that two of the 12 interviewees had had start-up

experience before joining the programme and they had either received funding or had worked in freelance design jobs. Five of the interviewees had acquired entrepreneurial knowledge from an institution or had attended business-related training. Most of them were still engaged in the same design discipline for which they had studied. The next section explains the research design which was used in this study. Details of the background information are supplied in Table 3.6.

Table 3.6 Background information of design incubatees - Case B

Incubatee (M)*	Design discipline	Entrepreneurial experience	Entrepreneurial academic knowledge	Educational background	No. of employees
M1	Industrial design	Yes	Yes	Industrial design	12
M2	Industrial design	Yes	Yes	Industrial design	2
M3	Multimedia/graphic advertising	No	No	Multimedia/graphic advertising	5
M4	Fashion/jewellery design	No	No	Fashion design	3
M5	Multimedia/graphic advertising	No	Yes	Industrial design	4
M6	Industrial design	No	Yes	Product design	4
M7	Industrial design	No	No	Industrial design	1
M8	Multimedia/graphic advertising	No	Yes	Interactive media	3
M9	Multimedia/graphic advertising	No	No	Multimedia/graphic advertising	2
M10	Fashion/jewellery design	No	No	Fashion/jewellery design	2
M11	Fashion/jewellery design	No	No	Fashion/jewellery design	2
M12	Fashion/jewellery design	No	No	Fashion/jewellery design	2

*M is represented case B- Microfund (M), the incubatees' names were anonymous, and their identities are indicated by numbering 1-12. For example, M1 is one of the incubatees of Microfund.

3.4. Research design

This research consists of three phases, literature review, case studies and experts review for validation (Figure 3.1). The first phase of literature review contributed to the formulation of the theoretical foundation of the research through defining concepts, identifying six categories of the BI process and proposing an initial framework. The initial framework served as the guideline for collecting data and creating the frame for data analysis in the subsequent stage. In the second phase, the two cases are studies for rich description of design start-ups in the BI process. Through within-case and cross-case analysis, a framework of BI for design start-up was proposed as the finding. In addition, the incubatees' perspective of the BI process and special requirements of design start-ups were reported as findings. In the third phases, all the findings in the last two phases were validated through expert interviews. Figure 3.1 shows the structure of this research.

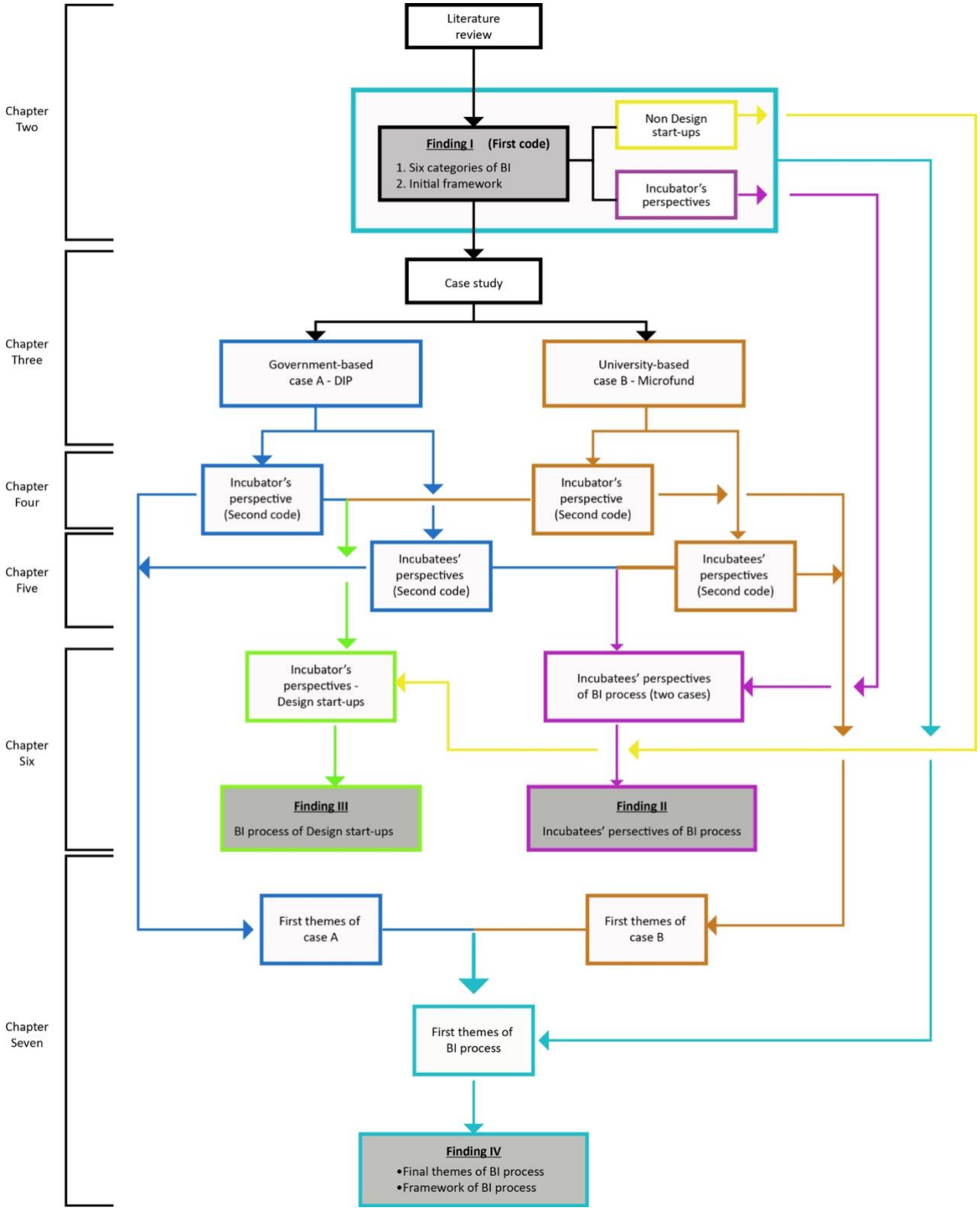

Figure 3.1 Research design phases

3.4.1 Phase 1: Literature review

Phase 1 consisted of two main parts: 1) a literature review of BI process and design start-ups, and 2) a proposed initial conceptual framework. The purpose of the literature review was to establish a holistic understanding of business incubation and explore the relationship between the business incubation process and design start-ups. This facilitated the formulation of a knowledge basis for the main research question of this study: What is the business incubation process for design start-ups? Related concepts were studied through a systematic literature review. These concepts are the definition of business incubator, the historical background of business incubator, the types of business incubators, the business incubation process, definitions of design start-ups and the BI process for design start-ups.

The second part of phase 1 entailed an initial framework of the BI process for design start-ups, reported six categories of BI in the first part.

3.4.2 Phase 2: Data collection and analysis

Phase 2 was the main part of the research. It consisted of two main stages, data collection (Phase 2A) and data analysis (Phase 2B).

1. Phase 2A: Data collection

In phase 2A, three methods, namely site observations, document reviews and semi-structured interviews were used, to collect data from two perspectives.

Data triangulation strategy was applied to collect data via multiple resources, including semi-structured interviews, physical artefacts from site visits and document reviews which served to obtain a balanced view of the factors affecting designers and their experience of incubators. Multiple sources of evidence help to address a wider range of historical and behavioural issues to ensure the relevance of the study (Yin, 2014). These are relatively uncharted areas of research to date (Denzin & Lincoln, 2017; Merriam & Tisdell, 2015; Stake, 2006; Yin, 2014).

After developing the interview protocol for both incubator and incubatee interviewees, a pilot study of two semi-structured interviews with incubatees was conducted to further develop the interview questions and test the procedure of the interview (Yin, 2014). Two pilot semi-structured in-depth interviews with two start-ups' incubatees were carried out to refine the

data collection plans, interview questions and related procedures. Due to the limited sample size of incubators, this pilot study assisted with the development of the interview questions for incubators. The interview as recorded and the data was transcribed. Since all the interviewees understood the questions and answered the questions with detailed information, all the interview questions are remained unchanged. The pilot study data, therefore, was included in the two cases.

1). Semi-structured interviews: incubator and incubatees

Semi-structured interviews were conducted to collect incubators and incubatees' perspectives on the BI process. Conducting interviews is the result of a social interaction between the interviewer and interviewees (Corbin & Strauss, 2008; Merriam & Tisdell, 2015; Rubin & Rubin, 2012) and, according to Kvale (2015), knowledge will be constructed as a result of these interviews. Although interviews may be prone to bias and inaccuracies due to poor recall (Yin, 2014), the method is considered the best way to conduct a qualitative study. By comparing different cases and analysing the various viewpoints of incubatees, it was possible to reach an understanding of the BI process and to generate direct knowledge about BI process for design start-ups. Before collecting the data and conducting the interviews, two different sets of interview protocol were developed for incubators and incubatees, respectively for the two types of business incubators, university-based and government-based (Baker, 1999; Maxwell, 2013). Interview guides were then created for this study based on the information gleaned from the literature review (see APPENDIX A and APPENDIX B). All of the areas of the business incubation process were incorporated to allow for a "focused exploration of a specific topic and engage in a deep discussion about the topic of interest" (Creswell, 2013, p. 155).

An eight-step procedure for interviews was adopted, namely

Step 1. identify interviewees,

Step 2. decide on the type of interview,

Step 3 record the procedures,

Step 4 design and use an interview protocol,

Step 5 refine the interview questions and the procedures,

Step 6 determine the place,

Step 7 resolve ethical issues,

Step 8 introduce time-management control.

A. Samples

An initial list of incubatees as interviewees was generated based on researcher's network and selection criteria. Later, those interviewed incubatees were requested to recommend other incubatees who had graduated from the incubator programmes and satisfy the selection criteria. With this snow-balling strategy, a total of 30 design incubatees and representatives of the two types of incubators were interviewed. Among them, there are 18 design incubatees interviewed in case A of DIP (Table 3.5) and 12 incubatees in case B of Microfund (Table 3.6).

B. Conducting the interviews

Interviews were carried out from October 2019 to March 2020. For the total 30 interviewees, 22 of them agreed to participate in the semi-structured interviews by virtual means and 8 were willing to have face-to-face interviews before circumstances intervened. After the Hong Kong protests in, and after May 2019 and the COVID-19 pandemic beginning January 2020, all the interviewees were contacted electronically, either by social media such as WhatsApp, telephone calls or emails. All the interviews were recorded and audio-typed with the consent of the interviewees. The semi-structured interviews were continued until no further new information or insights were found. All the interview data were archived and stored in both soft and hard copies. They are available for reference upon request for data validation.

2). Site visits- physical artefacts

The researcher conducted site visits to the two incubators as a non-participant observer to obtain first-hand information for this study. Observation was one of the key instruments used in the case studies. In this study, the site observations focused on two primary areas: the sites' physical settings such as standard facilities, shared common rooms, reception areas and incubatees' studios; and equipment such as photocopying machines. The initial conceptual

framework of the six categories of the BI process provided in Chapter 2 was taken into account when conducting these site visits. As a non-participant observer in the field, the researcher played the role of an outsider who could record data, take notes from a distance and generally observe both the site and the people in site (Bernard, 2006). Data were collected through note-taking by the researcher during these site visits.

During these site observations, three steps were followed according to the data collection method proposed by Creswell's (2013).

Step 1: Observe the incubation centres according to observation protocol

Step 2: Collecting data through taking field notes and photos

Step 3: Prepare to write a report

The data collection method entailed three main steps. Firstly, before the observation, the guidelines for the collection of data site visits (observation checklist) were constructed to guide the observation of the incubation centres (see Table 3.7 and Table 3.8). The site visit checklist of the facilities was based on the information of two cases(HKDC, 2019; IFE, 2020). Marshall (1999) defines observation as "the systematic description of events, behaviours, and artefacts in the social setting chosen for study"(p.79).

There were no common guidelines to follow and observe regarding these site visits, and the observation guide that Merriam and Tisdell (2015) had developed was consequently followed to study the physical environment of the incubation centres and facilities. All the data were archived and stored in both soft and hard copies. These are available upon request for data validation.

Table 3.7 Observation checklist – Case study A

Facilities	Yes	No	Comments
1. Shared office equipment			
2. Meeting rooms			
3. Incubatees' office space			
4. Common pantry			

Table 3.8 Observation checklist – Case study B

Facilities	Yes	No	Comments
1. Workspace area			
2. Event venue			
3. Reception counter			
4. Display area			
5. Meeting room			
6. Mailbox and copy machine			

Secondly, field notes and photos were taken during these visits to record the facilities at the sites in a natural operational setting. The photo references of both cases are supplied in Appendices F, G and H. Thirdly, based on all the observation checklist, photos and field notes taking, the researcher wrote the results of the report. (Table 3.9)

Table 3.9 List of site observations of the two cases investigated

Case A: DIP	Incubation centre	Duration	Date of visit	Types of information collected
Location	Wong Chuk Hang	4 days, 2 hours per day	20 Oct, 2019 30 Nov, 2019 10 Dec, 2019 14 Dec, 2019	Photos and notes
	Kowloon Bay	2 days, 2 hours per day	30 Nov, 2019 12 Dec, 2019	Photos and notes
Case B: Microfund				
Location	Innovation Tower 4/F, HK Polytechnic University	2 days, 2 hours per day	30 July, 2019 13 Aug, 2019	Photos and notes

3). Document review

Document review was the third source of collecting data for case in this research. It comprised of written records, visual data, artefacts and archival data (May, 2011). As internet sources have been found important in the field of social research (Denzin & Lincoln, 2017), documents on the subject of incubation programmes, official information related to incubators and incubatees were collected through websites of incubators and incubatees and other internet sources. Other types of documents, such as leaflets and corporate reports were also collected and examined.

As suggested by Creswell (2013), information on these two cases was collected and divided into the following categories: 1) contextual; 2) demographic; 3) perceptual; and 4) theoretical. Contextual information in this context refers to an extensive review of the organisation or

programmes inclusive of descriptive information on its history, vision and principles. As a result, 34 documents were collected from company websites, leaflets, brochures and social media platforms (see Table 3.10).

Table 3.10 Number of documents reviewed in both cases

Case A- DIP	Number of materials	Case B – Microfund	Number of materials
DIP websites: programme information, incubatees' information	1	Microfund website: programme information, incubatees' information	1
DIP social media – Facebook and YouTube	2	Microfund social media – Facebook and YouTube	2
Incubatees' websites	18	Incubatees' websites or social media	10
Total:	**21**		**13**

Table 3.11 provides a summary of the information collected on the two cases examined and the instruments of collection methods used in responding to research questions one and two.

Table 3.11 Types of information collected from the two cases investigated

Research question	Content of information	Method
Main research question: What is the business incubation process for design start-ups?	What are the services and supports that business incubator provided to design incubatees? Literature review on business incubator s' incubation process in the six BI categories.	Literature review and document review
	Compile a list of existing business incubators in Hong Kong. Select different types of incubators in Hong Kong which are available for designers to apply to, collect their basic information and identify which two cases to study.	Literature review and document review
Sub-questions (SQ)		
SQ1: What are the incubator's expectations and perspectives of their design incubatees and the programmes?	Purposively select two different types of incubators for designers in Hong Kong based on a set of criteria developed from the literature review.	Document review
	Literature review on business incubators in the design sector, including qualitative research, incubators' services and support for designers, design start-ups and design education.	Literature review
	Collect incubators' perspectives on incubatees in terms of expectations, objectives and services and support in the six categories of the incubation process.	Semi-structured interview
SQ2: What are the design incubatees' expectations and perspectives on their business incubators in terms of services and support? **SQ3:** What are the key elements of business incubation process for design start-ups?	General demographic information of design incubatees from two different incubators, including design disciplines, work of experience and year of incubation.	Semi-structured interview, document review
	Collect incubatees' opinions on the incubation process with reference to the six categories of the BI process.	Semi-structured interview, on-site observation

2. Phase 2B: Data analysis

The purpose of the data analysis was to gain an understanding of the views of both incubators and incubatees in the two types of business incubators. The results of data analysis answered the first and second sub-research questions, 1. What are the incubators' expectations and perspectives of their design incubatees and the programmes. 2. What are the design incubatees' expectations and perspectives on their business incubators in terms of services and support? A thematic analysis was used to analyse the data by coding and generating themes and patterns (Braun & Clarke, 2006). Code is defined as "a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (Saldaña, 2016, p. 3). The coding method incorporates first cycle coding and second cycle coding (Saldaña, 2016). The purpose of coding the data is to develop concepts and explore relationships between the themes within the data.

The data analysis part encompassed six steps, from database generated with collected data to the final framework proposed based on coding results. The thematic data analysis process was developed according to the seven steps advocated by Braun & Clarke (2006) .

Step 1: Familiarising oneself with the data

Step 2: Coding – Generating first codes and second codes (The content is reported in CHAPTER 4 and CHAPTER 5)

Step 3: Searching for themes (CHAPTER 6)

Step 4: Generating first themes (Chapter 6)

Step 5: Combing the first themes to second themes and analysing second themes with literature review (CHAPTER 7)

Step 6: Finalising the BI framework and giving recommendations (CHAPTER 7)

Steps 1 and 2 refer to the coding process of data collected from multiple resources. This is a within-case analysis and the results are the second codes according to the six categories. In Step 3 and 4, coding results of the two cases were compared and contrasted to discover similarities and differences of incubators and incubatees' perspectives. This is a cross-case analysis. Later, themes were defined through the findings of the literatures in Step 5, in line with the six categories of BI process. The results were summarized and illustrated as a framework in Step 6.

Step 1: Familiarising oneself with the data – transcriptions

In this Step, the audio records of interviews were transcribed in English. These interview data were input into the computer-aided qualitative data programmes, MAXQDA and ATLAS.ti to get the first code. (Table 3.12)

Table 3.12 Summary of the first codes

BI process	First codes
1. Selection process and exit policy	• Selection criteria • Exit policy
2. Infrastructure	• Location • Facilities
3. Financial support	• Finding investors • Use of funding
4. Business support service	• Mentoring • Milestone assessment
5. Networking	• Internal networking • External networking
6. Entrepreneurship training	• Business training organised by incubator

Step 2: Coding– Generating second code

In this step, the software's analytic coding function is applied to encode any idea or feeling expressed. The first codes were generated according to the results of the literature review of the six categories of BI process discussed in Chapter 2 (see Table 2.6). They supplied the frame for the coding. Based on it, quotations related to the first codes in the transcriptions were highlighted. Table 3.12 is the summary of the first codes. After highlighting the quotations, the researcher went through all the interviewees' transcriptions to report the second codes (see Table 3.13).

Table 3.13 Examples of the second codes for analysis

BI process	First codes	Second codes
Infrastructure	Location	• Close to suppliers and living space
	Facilities	• Workshop with the necessary equipment • The functionality of an office space

The second codes of the two cases were synthesized separately according to the two perspectives, incubator and incubatees. The incubator perspective of the two cases were reported in CHAPTER 4, while the incubatees' perspective was summarized in CHAPTER 5.

Steps 3: Second codes comparison

There are two comparisons conducted in this step based on obtained first codes. The first comparison is between incubators' perspectives of two cases and the BI process from literature review to identify the characteristics of BI process of design start-ups. Another comparison compared incubatees' perspectives. Second codes with BI process from literature review, which is limited in incubators' perspectives. The result shows the characteristics of incubatees' perspectives on BI process. (Table 3.14)

Table 3.14 Example of the first themes in data analysis

BI process	First codes	Incubator's perspectives	Incubatees' perspectives	First themes
	Second codes			
Infrastructure	Locations	Close to other design companies	Close to suppliers and living space	A(4) convenient
	Facilities	Necessary standard equipment for office	Workshop with the necessary equipment	A(5) Flexibility of the office usage
		Provided different spaces based on incubatees' needs	The functionality of an office space	

Step 4: Final themes of BI process

In this step, the first themes were obtained through synthesizing the result of second codes of incubatees' and incubators' perspective on BI process from the two cases. The first themes were compared and contrasted with the results of literature review to obtain the final themes. The themes of the incubator's perspectives and incubatees' expectations in the BI process were then finalised (see Table 3.15).

Based on the analysis to generate the final themes, the initial framework was modified, policy implications of the research were developed, and the findings were used to formulate recommendations and conclusions at the end of the research in CHAPTER 7 (Stake, 2006; Yin, 2014). Figure 3.1 shows the structure of the research analysis conducted for Case A and Case B as stated above. The validity of the research data is discussed in the following section.

3.4.3 Phase 3: Experts' review

In phase 3, experts review was conducted to validate the findings reported in this thesis. Three main findings were reviewed by the experts. These were are 1) the six categories of BI process, 2) findings on incubators' perspectives of BI process and 3) findings on BI process of design start-up.

1. Experts

The experts were from two groups, including 3 experts from the design industry with experience in business incubation and 3 experts from academia. They were invited to review the three main findings.

1). Background of the industrial experts

The three experts in the industrial group were all specialised in business incubation, either currently in a business incubator or organised entrepreneurial programmes for design companies. All the experts had over 4 year's of experience in start-up business or entrepreneurial programmes in different regions and countries. Table 3.15 shows their background information.

Table 3.15 Background of industrial experts

No.	Job title	Name of the organisation	Years worked in the organisation	Years of experience in start-ups/entrepreneurship programmes
1	Deputy Executive Director	Design Singapore Council	4 years	4 years
2	General Manager	Strategic Development Centre	3 years	12 years
3	Project Director	Fashion Farm Foundation	8 years	8 years

2). Background of the academic experts

Three experts were in the academic group, Table 3.16 . In this group, all of the experts were specialists in either design business or start-up business. They had over 10 years of experience working in the university and were from different disciplines.

Table 3.16 Background of the academic experts

No.	Job title	Name of the organisation	Years worked in the organisation	Years of experience in start-ups/entrepreneurship programme
1	Professor	Management and Marketing Department, HKPolyU	13 years	13 years
2	Teaching Fellow	School of Design, HKPolyU	10 years	14 years
3	Associate Professor	Institute of Textiles and Clothing, HKPolyU	10 years	1 year

2. Experts' interview

The interview consists of two parts. The first part is an evaluation survey. Al the interviewees were required to complete an online survey to indicate their opinion on the three findings in this research. In the second part, a follow-up interview was conducted to clarify the points in the survey, especially these disagreed point. Each interview was conducted for a period of approximately 30 minutes. The interviews were conducted either face-to-face or by phone call. As the result, all the findings were supported by the experts. The research findings were validated.

3.5. Research ethics

Research ethics were considered during all stages of research data collection. Before conducting the interviews, all participants were given information on the overview of research topics, research objectives, types of questions, the duration of the interview as well as how the research findings would be utilised in future publications. The consent form, incorporating the above information, was sent to all the participants prior to the interviews with them. All participants, including incubation managers, directors and incubatees, signed the consent form, confirming their acceptance that their participation in the study was voluntary and that they could withdraw at any time. They were assured that all the data would be kept confidential and stored in a secure place to which only the researcher would have access. They were informed that no participants would be named in subsequent publications and that the data would only be used for research purposes. A copy of the consent form used is appended as APPENDIX C.

3.6. Summary of the chapter

In this chapter, the details of the research methodology used in phase 2 and 3 were discussed. Firstly, the theoretical background of the methodology selection was introduced, and the reasons for using inductive theory in the qualitative research approach in multiple case study were explained. Secondly, the rationale for using the multiple case study approach was described to demonstrate the perspectives and experiences of incubators and incubatees from the two types of business incubator under consideration. Thirdly, the selection of the case study approach to achieve the research objectives of this thesis to understand incubatees and incubators' perspectives and to find similarities and differences according to the six categories in the business incubation process was explained. In the fourth instance, the research design was presented to clarify the selection of cases, selection of samples and the three studies. The data collection method and the instruments of data collection were then described. The data analysis method of using a thematic analysis and coding to compare and contrast the data was also introduced. Finally, the process and samples of relevance to expert interviews were discussed.

CHAPTER 4. THE INCUBATOR'S PERSPECTIVES OF THE TWO CASES: DESIGN INCUBATION PROGRAMME AND MICROFUND

CONTENT

4.1. Chapter introduction

In this chapter, the results of incubator's perspectives for the two cases are reported. The two cases were Government-based, Design Incubation Programme (Case A – DIP) and University-based, HKPolyU Micro fund (Case B – Microfund). The objective was to develop the understanding of incubators' expectations of the incubation process in line with the services and support of six categories: 1) selection process and exit policy; 2) infrastructure; 3) finance support; 4) business service support; 5) networking; 6) entrepreneurial skills training. The case description answers the first of the sub-research question, 1: What are the incubators' expectations and perspectives of their design incubatees and the programmes?

The data collection and analysis followed the frame supplied by the first codes of the six categories of BI process, which were reported as the results of literature review (See Table 2.6). After analysing the data, the second codes were generated and shown in line with the six categories. The summary of all the first codes and second codes are presented at the end of this chapter.

4.2. Incubator's perspective on Case A –DIP

In this section, the government-based incubator, Design Incubation Programme (DIP) is discussed to identify the incubator's objectives and perspectives in the six categories of the business incubation process. The database of DIP was generated with data from the interview with the representative of the incubator, documents and site observation. A representative of DP was interviewed face-to-face on 14 Dec, 2019 in a session lasting two hours. All the collected data were recorded, transcribed and stored in a secure place to keep it confidential. However, reference to the information can be provided for validation if necessary.

4.2.1 Incubators' objectives

Incubators' objectives are essential to understand the purposes of setting up an incubation programme, as well as the incubator's expectations of the incubatees and the programme. In DIP, the overall purpose was to nurture incubatees to become successful entrepreneurs. They were given the opportunity to learn business skills through the entrepreneurship training and sustain their business in ten years. Three objectives were as follows (HKDC, 2019):

- To promote a productive and stimulating environment for design entrepreneurs
- To enrich the resourcefulness of design entrepreneurs in order to assist them in their long term business development
- To provide a community for design entrepreneurs to learn entrepreneurship

From the results, two second codes were discovered, these being 'Become a successful entrepreneur in business' and 'Sustainable business'. These are the two main purposes of DIP. They represent the objectives of helping incubatees to be successful in business and sustain their business after graduating from the DIP two years later.

4.2.2 Selection process and exit policy

Selection process and exit policy is the first category of six. In DIP, a linear selection process is applied with reference to seven steps (see Figure 4.1). In Step 1, all the applicants are required to submit their application forms with a template of a business plan. There are ten sections in the business plan template, including 1) Basic information of the applicant; 2) Business information (key products/services); 3) Revenue forecast; 4) Target market; 5) Distribution channels; 6) Competitive analysis; 7) Pricing strategy; 8) Sales and marketing strategy; 9) Social impact; and 10) Milestone assessment plan (cash flow projection, business activities: number of award applications). After the submission of the applications, the secretariat would interview them in Step 2 and conduct a due diligence meeting in Step 3. Those shortlisted would be invited to give presentations to the admission panel in Step 4, and then notified of the results by the incubator as to whether they were successful or not at Step 5. If the applicants were admitted to the DIP, then they would receive an office space and receive their DIP funding within two years. In Step 6, three different milestones in the two years were stipulated, these being in the 4^{th}, 12^{th} and 20^{th} months of the two-year period. In Step 7, if the incubatees passed all the assessments, then they could graduate from the DIP.

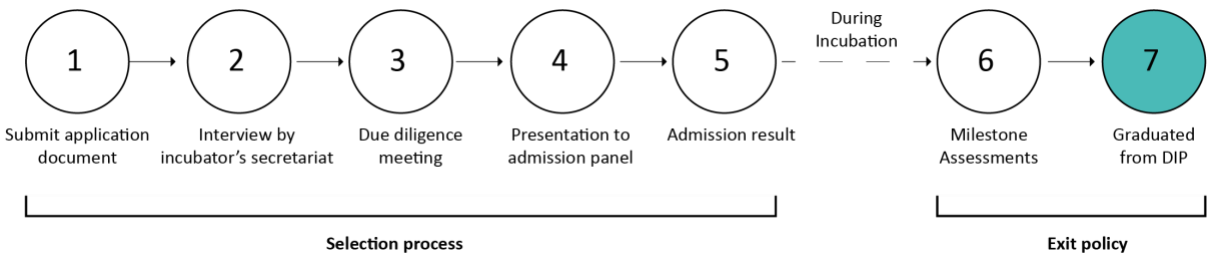

Figure 4.1 Incubatees' selection process and exit policy (Source: adapted from HKDC, 2019)

'Selection criteria' and ***'Exit policy'*** are the two first codes of this first category to collect data and analyse data. The first one is about the selection process, while the latter is for the exit policy.

1. Selection process – selection criteria

The selection process and admission criteria of DIP were set by the Hong Kong Science Parks in 2005, a government-funded platform to facilitate technology start-ups. The incubator had a list of admission and advisory panels for vetting the applications according to their presentations and business plans (HKDC, 2019). The incubatees were selected by the panels according to the feasibility of the business plan, with reference to factors such as marketing or market segmentation.

The applicants were required to submit their design portfolios together with the completed application forms, in which all the details of the business plan were included. One of the mandatory criteria was two full-time staff in the start-up team. The reason was that two full-time staff could help each other to deal with different business matters. Particular emphasis was placed on business matters in the case of design start-ups, because it was noted that designers lacked business knowledge. In this case, the DIP recommended that design entrepreneurs should collaborate with partners from other disciplines to formulate the initial partnership or team. There were no restrictions to final-year students applying for the programme. The DIP was willing to accept applications from fresh graduates, local applicants or foreigners.

To summarise, from the first codes of selection criteria from incubator's perspective, one main second code, that being 'Combinations of different partners' was generated. DIP

expected the applicants to have two or more staff with different backgrounds to work in a start-up.

2. Exit policy

In the first codes of exit policy, issue related to incubatees' progress after incubation was raised. In DIP, a two-year incubation period was set from the beginning of the programme. The five-year funding allocated was to support 90 incubatees in 3 phases, and in each of these phases the DIP would admit 30 incubatees for a two-year period. After five years, they have to apply for further government funding to support another 90 incubatees. Incubatees are required to fulfil three of the milestones assessments in these two years, including product or design service development, and the number and nature of the sample/prototype/design proposal ready for production or delivery. The incubation manager will meet with the incubatees to determine whether they fulfil the required milestone assessments. If they fail to achieve these three milestone assessments, incubatees cannot continue in the programme and cannot graduate from the programme. The three milestones were set up by incubatees after negotiation with the incubator when they applied for the DIP. Normally, these milestones are easy to achieve. Increasing the profit and employment are also included in the assessments to represent the expectations of the incubator. Furthermore, the assessment of the exit policy was also based on the incubatees' sales revenue. If an incubatee fulfilled all three stages of the milestones achievements and mandatory training, they would graduate within two years.

After fulfilling the three milestones, the incubatees will graduate from the DIP. DIP will track their development through contacting the graduated incubatees and checking the sustainability of their businesses. According to a large-scale survey conducted by DIP, it was shown that 95% of incubatees were still in operation up to 2019. This evidence indicated that the DIP programme was successful, when compared with other entrepreneurial programmes. The reasons for the success are further explained by the fact that the incubator was teaching incubatees how to do business, instead of focusing on design knowledge.

From the first codes of exit policy, two second codes were generated: 'Amount of the government funding' and 'Increased revenue and staff, and a follow-up survey'. The incubator

applied for government funding to continue their incubation programme and conducted a survey to maintain the survival rate of incubatees.

4.2.3 Infrastructure

The second category of infrastructure includes two first codes, which are 'Locations' and 'Facilities'. Details are explained in the following sections.

1. Locations

There are two incubation centres in DIP, one located in Kowloon Bay, and another in Wong Chuk Hang. Both of them are located in the commercial areas and are convenient in respect of public transportation. The travel times to the city centres, refer to the maps and programme information, such as Central, MongKok, Tsim Sha Tsui are within 30 minutes. The reasons for choosing the locations were that they were close to the design clients, which were locate in commercial areas in the city and there were many design companies around the areas, which was seen to be of benefit to incubatees. Since design covers broad disciplinary areas, design companies normally vary in terms of their design discipline, professions and business areas. By locating in commercial areas, design incubatees could easily find partners and collaborators.

To summarise, 'Close to other design companies' is the second code of this locations element. The incubator chose the locations that were near to the other design companies, as they thought it would create synergy in the industry.

2. Facilities

Facilities mainly refer to the physical assets supplied by DIP. They include office space, related equipment, other supplementary assets and facilities based on service. In the incubation centres of DIP, the main facilities are:

- 24 hours' access to the centre
- 24 hours' access to free WiFi services
- Shared office equipment – printer, laser cutter, UV printer, 3D printer
- Meeting rooms
- Photo studio

- Common pantry

Besides office space, meeting rooms and common pantries are the basic public spaces shared by incubatees. A photography studio is also supplied as special space for the demands of design start-ups. Equipment, in addition to the general types, includes such options as 24 hours' access to the centre and free wifi service, as well as special equipment for design, such as 3D printers.

DIP offers two different types of office space: 1) an office room, and 2) a co-working desk. Both of these are free of charge in the first year, HKD 13 per square foot per month in the second year for the incubation room, and HKD 900 per month for the co-working space. The Incubator considered the allocation of resources according to the business nature and size of start-up team. The incubatees were assigned to a room or a co-working desk accordingly. This implies a flexible strategy to select space for incubatees to satisfy their needs. Photos in Appendices F and G show the co-working space and the facilities inside two incubation centres at Wong Chuk Hang and Kowloon Bay.

As a result, the facilities element is further interpreted by using two second codes, 'Necessary standard equipment for office' and 'Provided different spaces based on incubatees' needs'. Incubators not only offered necessary and standard equipment to design incubatees, but also supplied different sizes of the office space for incubatees to meet their needs.

4.2.4 Financial support

In the category of financial support, there are two first codes, these being 'Finding investors' and 'Use of funding'. Details are provided in the following sections.

1. Finding investors

DIP plays a crucial role in finding investors for an incubated design start-up. The Incubator helps incubatees to find investors. However, this is not always successful due to the following reasons. Firstly, the investor may not be a good match for the design start-up. Secondly, products developed by the design start-up may not be ready to market or their product or design services may not be unique enough. These reasons limited the attraction of potential

investors in start-ups. In addition, the incubator encourages incubatees to find external resources and investors, in particular via their own channels or network.

To summarise, 'The role of the incubator' is proposed as the second code in the area of finding investors. DIP plays a crucial role to help incubatees in finding investors. The role of the incubator is to link incubatees with external investors or, alternatively, encourage incubatees to approach to investors actively.

2. Use of funding

The DIP has limited funds, and these are divided into three categories (Table 4.1). All the funds are used to pay for the expenses in a start-up business. The claimable rate ranges from 50% to 80%. The fund is divided into operation, promotion and management categories. DIP stipulates that incubatees should not spend everything in one category. Instead, they recommend the spending of the funds on items such as marketing or training.

Table 4.1 Use of funding

Funding	Claimable rate
Operation expense fund	Max. 50% claimable rate
Promotion and development fund	Max. 80% claimable rate
Management and design training fund	Max. 80% claimable rate

Incubatees are entitled to be reimbursed for their costs if they have used the incubator services. DIP could not provide the extra business service to incubatees due to their limited resources. If incubatees did not have enough capital, they would have to plan their finance and their activities based on their resources and funding. Financial plan is a critical aspect of a business plan so incubatees have to plan for it when they prepare the application form for the DIP, inclusive of a detailed calculation of how much capital is needed.

The nature of business is also taken into consideration, when DIP decided the range of fund supporting to particularly design start-up. For example, the cost for setting up a design start-up for graphic design service was relatively low and a fresh graduate could work on it. However, setting up a new fashion design business requires more investment and the incubatees should gain more work experience in the industry. Otherwise, they could not work independently in the future. The Incubator reported that fashion design incubatees who graduated from famous fashion design universities normally had enough capital to start a

business. With full awareness of this unique business section in design, DIP had established an independent incubation programme specifically for fashion design companies in 2017.

With reference to the above, one second code was discovered, which being 'Limited resources' for the use of funding. Due to the limited resources given to DIP, the explicit defined funding mechanism was designed to guide the design start-up with a well-organized financial structure in the whole business plan.

4.2.5 Business support services

For business support services, two first codes were applied as the frame for data collection and analysis. They are 'Mentoring' and 'Milestone assessment'. Details are given in the following sections.

1. Mentoring

DIP provides a one-on-one mentor service to incubatees. This is a compulsory activity in the programme. The incubatees are required to meet mentors three times within the two-year incubation period. They can choose the mentors from the provided list and meet them for around one hour for business advice. The service is free of charge, but the consultation fee is deducted from the total amount of funding allocated in the category of management and design training fund.

Mentors only give advice within their expertise. Incubatees are expected to collect opinions from mentors in different expertise areas. Then, the incubation manager consolidate and refine the results. It is implies that the proactive attitude from incubatees is crucial, since the mentors offer their advice on demand. This is the approach for incubatees to broaden their knowledge scope and develop their knowledge of start-up business. According to the incubation manager, if incubatees followed this pattern, then they would become successful. According to the DIP, the earlier an incubatee seeks advice from a mentor, the greater the chance that they will be successful.

The Incubation manager met with incubatees when they had problems or questions about their businesses. The DIP then recommended solutions and, when the incubatees told them about their business status or problems in detail, the incubation management could help

them to connect to other people to give them business advice. After incubatees had met with different mentors, they could ask the incubation manager to consolidate the advice given and come up with a realistic business plan for their businesses.

With reference to the above two second codes were discovered, these being 'Gain different perspectives from mentors' and 'Depends on the entrepreneurs' attitude'. The DIP expected incubatees to find mentors from different fields of expertise to gain diverse perspectives on their business. The effect of mentorship depends on the motivations of the entrepreneurs. According to the DIP, under normal circumstances, incubatees will benefit from this.

2. Milestone assessment

The milestone assessment helps to monitor the progress of incubatees' business growth. DIP required incubatees to submit their business plan when they applied to join the programme at the beginning. There are three stages of milestone assessments within the two-year incubation period. The milestone assessment includes sales revenue, number of activities and other projections. If incubatees accomplished all the milestones, then they would be partially reimbursed. The Incubation manager acts as an advisor to incubatees and is responsible for approving their milestones.

To summarise the milestone assessment, a second code was found, this being 'Incubator's advice only for incubatees' reference'. DIP expected that the Incubation Manager could give business advice to incubatees during the milestone assessment but this would be based on their experience. The Incubator recommended that the incubatees should seek advice by themselves from other experts and mentors. The Incubation Manager's advice was for reference purposes; the business decision-making was the duty of the incubatees.

4.2.6 Networking

DIP offered internal and external networking arrangement for incubatees to connect with others and gain exposure to the public. In the category of networking, two first codes were reported from the literature review and applied in the data collection of the two cases. They are 'Internal networking – among incubatees' and 'External networking – business connection'. Details are supplied in the following sections.

1. Internal networking – among incubatees

The purpose of internal networking was to help incubatees meet with investors, industry experts and DIP alumni to expand their business network and forge business cooperation deals with potential partners. These networking activities are compulsory and there are eight sessions in two years of incubation.

The Incubator expected incubatees to learn how to communicate with people and these networking sessions gave them opportunities to talk with business partners or investors. During the limited time, it was a good practice to train them to pitch. DIP could not help them individually, one-by-one, to stand alongside the incubatees when they talked to investors.

To summarise, one second code was generated for the internal networking, that being 'Train incubatees' pitching skills'. Through the internal networking, DIP expected incubatees to learn pitching skills and gain opportunities for business collaboration.

2. External networking – business connection

For the external networking, two different events were compulsory, these being 'Business of Design Week (BODW)' and 'Knowledge of Design Week (KODW)'. Incubatees were required to attend at least two sessions per incubation year. They had to pay HKD 1,500 per session of the events. They were then able to claim reimbursement for the cost of the events from the management and training fund in the programme. The purpose of these events was to enrich incubatees' knowledge in design fields and gain business opportunities to meet with business leaders to exchange ideas.

For external networking – business connection, the mandatory networking sessions served to coach incubatees about exposure to the public. DIP considered that the networking activities were crucial for the success of start-ups. The incubator also introduced more stakeholders to incubatees to increase their business connections.

To summarise the external networking, a second code was identified, that being 'Opportunities for exposure to get business orders'. DIP expected the incubatees to gain their business network and connections through these compulsory external networking activities.

4.2.7 Entrepreneurship training

Based on the literature review, the first code of entrepreneurship training was defined as 'Business training organised by incubator'. Details are explained in the following sections. The entrepreneurship training offered by DIP varied in terms of format, such as seminars, business training and other activities. Besides delivering knowledge of the design business to incubatees, it linked the incubatees with business partners, industry experts and potential investors. This DIP entrepreneurship training included seven modules and a one-day site visit trip. The seven training modules are accounting, branding, products and marketing, business report writing, presentation skills, and networking with design and manufacturing industries. In the site visit, incubatees normally visit design enterprises and manufacturers in the Pearl River Delta. This is also compulsory training.

Incubatees have to attend in the first year of incubation. They have to pay HKD 6,000 for the full training and they are entitled to a reimbursement of up to 80% of training fees if they fulfil the attendance requirement. They can also receive a reimbursement of between HKD 30,000 and HKD 180,000 in the categories of management and training funding to cover the expense of local training courses, hiring student interns, compulsory training and networking sessions, as well as mentor consultations organised by DIP.

DIP aimed to train them to become successful entrepreneurs and know how to do business. They expected this training could help incubatees to survive in their business for ten years. For example, the trip to Mainland China was important. It was considered that few incubatees recognised the Pearl River Delta as being essential for developing business activities and seeking partner companies. In the Pearl River Delta, there were well-known design firms, which are strong competitors of Hong Kong incubatees. Their successful businesses also showed good opportunities in markets. From the perspective of the incubator, it was expected that the design incubatees should learn selling skills, financial management, intellectual property, marketing and pitching, which should be the main knowledge learnt by the design start-ups. This is because designers normally lacked business knowledge and pitching skills. However, DIP recognized that they could not teach incubatees all the necessary skills. Therefore, mentorship services were offered to allow incubatees to gain knowledge from experts in related business areas.

To summarise, one second code was identified as 'Train incubatees to become successful entrepreneurs'. According to DIP, the entrepreneurship training is to train incubatees to be successful entrepreneurs in business, and hence not only experts in design, but also experts in doing business.

4.2.8 Summary of incubators' perspectives on business incubation process in Case A – DIP

In this section, the incubators' objectives and the six categories of business incubation process in DIP are reviewed. It represents government-based incubator and opinions from the incubator's perspectives. As the results of data analysis based on the initial first code of six categories, 16 second codes are reported. Table 4.2 shows all the second codes obtained based on the first code of Case A – DIP.

Table 4.2 Summary of first and second codes of incubator's objectives and the six categories of BI process from incubator's perspectives - Case A – DIP

Incubator's objectives		**First codes**	**Second codes**
		Incubator's objectives	(1) Become a successful entrepreneur in business (2) Sustainable business
BI process category		**First codes**	**Second codes**
1. Selection process and Exit policy	Selection process	Selection criteria	(3) Combinations of different partners
	Exit policy	Exit policy	(4) Amount of the government funding (5) Increased revenue and staff, and a follow-up survey
2. Infrastructure		Locations	(6) Close to other design companies
		Facilities	(7) Necessary standard equipment for office (8) Provided different spaces based on incubatees' needs
3. Financial support		Finding investors	(9) The role of the incubator
		Use of funding	(10) Limited resources
4. Business support service		Mentoring	(11) Gain different perspectives from mentors (12) Depends on the entrepreneurs' attitude
		Milestone assessment	(13) Incubator's advice only for incubatees' reference
5. Networking		Internal- among incubatees	(14) Train incubatees' pitching skills
		External-business connection	(15) Opportunities for exposure to get business orders
6. Entrepreneurship training		Business training organised by incubator	(16) Train incubatees to become successful entrepreneurs

For the ***incubator's objectives***, two second codes were discovered. The main expectation of the DIP is to facilitate incubatees become a successful entrepreneur and to sustain the incubatees' businesses after the two-year incubation period.

For the first categories, ***selection process and exit policy***, three second codes were discovered. The Incubator was mainly concerned about whether incubatees had developed good business plans and increased the amount of revenue or the number of employees when they graduated from the programme. To achieve these goals, the incubator expected to have stakeholders from different backgrounds in their start-ups.

For the ***infrastructure***, three second codes were developed. The main concern was that the location of incubation was close to other design companies, as well as whether DIP provided the necessary business equipment and different working environment to incubatees.

For the ***financial support***, two second codes were identified. These are related to the role of the incubation manager, and the fact that they might only give general business advice to incubatees based on their experience and limited resources. The incubatees were recommended to seek business advice from the mentors.

For the ***business support ser***vice, three second codes were reported. The Incubator only provided the necessary business advice or referrals based on their experience to incubatees. The incubatees were suggested to seek help from other experts by themselves.

Two main second codes were stated for the ***networking***. The main purpose of all the networking sessions provided by incubators was to train incubatees' pitching skills and assist them with exposure to the public, which could potentially result in business orders.

For the last of the categories, ***entrepreneurship training***, one second code was explored. Incubators organise entrepreneurship training for incubatees to become successful entrepreneurs. Incubatees can learn various aspects of business, such as accounting, finance, copyright or marketing. Then, they are encouraged to apply the knowledge in their start-up business.

4.3. Case study B – Incubators' perspective on Microfund

Case B is a university-based incubator (Case study B)- Microfund. As in Case A, the incubators' objectives and perspectives in the six categories of the business incubation process were applied as the frame of studying the case.

4.3.1 Incubators' objectives

The first code of 'Incubator's objectives' was applied to study. The Microfund aim is to 'bolster the awardees' implementation of high-quality business propositions with a positive social impact' (IFE, 2019). Based on this, specific objectives are pursued:

- Cultivate an innovative and entrepreneurial ambience in the university's community
- Nurture socially responsible youngsters with "Do well do good" entrepreneurship through hands-on entrepreneurial endeavours
- Facilitate knowledge transfer of the university innovations and technologies

The main expectation was to initiate start-up businesses by university students and alumni, and influence society. All the students and alumni were eligible to apply for the business and social innovation theme. Applicants for the technology innovation theme were expected to demonstrate inventions, research done at university level, the applicable intellectual property status and show how the advanced technology can be commercialised and promote the technology research development in the University.

Another expectation of the Microfund was to train students and alumni to learn entrepreneurship and facilitate knowledge transfer of innovation and technologies. This form of assistance is sustained up to the end of the incubation process. If the incubatees want to continue their business or develop it further, incubators can introduce external funds to them. In generally, students from the technology innovation theme found it easier to sustain and scale up their business after graduating from their programme. However, the design start-ups had more difficulty when scaling up and sustaining business after graduation.

To summarise the objectives of Microfund, two second codes were identified, 'Success in commercial start-ups projects' and 'Business in social impact'. Microfund assists students and alumni to transform their projects into commercial projects or businesses through their entrepreneurship training, business services and support with funding assistance.

4.3.2 Selection process and exit policy

Microfund has eleven steps in the selection process and exit policy (Figure 4.2).

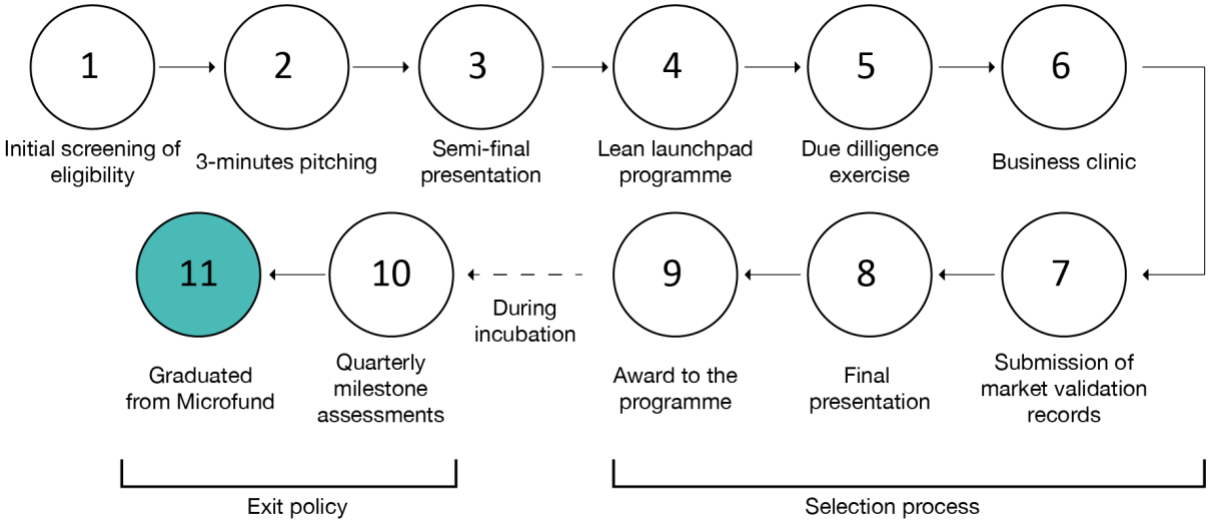

Figure 4.2 Selection process and exit policy – Microfund (Source: adapted from IFE, 2019)

In Step 1, all the applicants are required to submit their application forms, which include the company information about their proposed business plan. There are four sections in the application form, 1) Basic information of the applicant; 2) Team member's information; 3) Company information; and 4) Project information. In Step 2, they need to submit a three-minute pitching video about their projects presented to the Microfund. After the pitching, all the applicants are required to attend a five-week Lean Launchpad programme to learn entrepreneurship in Step 3. In Step 4, all the applicants are invited to give presentations to the admission panel. This is the semi-final presentation. After the presentation, the secretariat would interview the shortlisted applicants to conduct a due diligence meeting and the applicants will receive funding of HKD 5,000 for prototyping support and a working space at incubation centres in Step 5. The shortlisted applicants in the semi-final presentation will meet with mentors and industry experts to revise their business proposal and project; this is the business clinic in Step 6. After meeting with the experts, applicants are required to submit the market validation records and give final presentations to the external assessors in Step 7 and Step 8.

The awardees of the final presentation will receive a seed fund up to HKD 120,000 by instalment to support their projects within the following 12 months in Step 9. For the exit policy, there are two milestone assessments to monitor the incubatees' performance of the

business development in Step 10. If the incubatees fulfil all the milestone assessments, the incubatees can graduate from the programme in a year in Step 11.

The time frame of the whole process is one and half years. Microfund refers to it as pre-incubation training, targeted to admit 15 incubatees to the one-year incubation programme each year (IFE, 2019). Two first codes, these being 'Selection criteria' and 'Exit policy', were applied to understand the Microfund.

1. Selection process – selection criteria

Microfund defined the admission criteria to encourage students and alumni from all disciplines to apply for the programme (IFE, 2020). There are totally five assessment criteria for admission. Table 4.3 shows the criteria and their respective weightings.

Table 4.3 Assessment criteria of Case B
(Adapted from IFE, 2020)

Assessment criteria	Percentage of total marks
Innovation and creativity	25%
Applicant's background/relevant strength	25%
Business model, commercial and technical feasibility	25%
Social/community impact	15%
Milestones for the funding/ incubation period	10%

There are two themes in Microfund, namely business or social innovations and technological innovations (IFE, 2020). Design students or alumni mostly apply for the former theme, which required a social or community impact. Although the social/community impact is weighted at 15%, it is difficult to judge it in design projects and start-ups. In this case, most of the admission panel members made their decision on the basis of the quality or newness of the design idea. The panel members are experts invited according to the assessment criteria. They are either experts of social innovation or investors. Furthermore, with full awareness of the assessment criteria, design start-ups normally incorporated sustainability elements in their services or products.

To summarise, one second code was discovered in the admission criteria, 'Difficulties of business model'. Microfund found that the business model of design start-ups is difficult to assess in the application stage. The reason was that the quality of design was an abstract concept and relied on a person's personal judgement or aesthetic appreciation.

2. Exit policy

For the exit policy after incubation, Microfund supplies two main services for incubatees. For the technology innovation theme, incubatees with outstanding performance will be admitted to the technology incubation programme, operated by The Hong Kong Science and Technology Parks Corporation. For the social and innovation theme, Microfund will refer them to the other external fund or incubation programmes to continue their business.

There is no follow-up session by Microfund for incubatees who have graduated from the programme. However, incubatees can join the seminars organised by the incubator. Microfund conducted a survey to ascertain incubatees' survival rate three years after their graduation. The results showed that their survival rate after three years of incubatees' graduation was over 60%, which is satisfactory.

In the exit policy, one second code was defined, this being 'Apply other funding to continue and scale-up'. Microfund expects incubatees to continue their business after having graduated. Therefore, they refer them to other funds and post-incubation programmes to continue their business.

4.3.3 Infrastructure

The second category of the BI process in Microfund is that of infrastructure. Two first codes are applied, these being 'Location' and 'Facilities'. Details are explained in the following sections.

1. Location

There is only one location for the incubation centre of Microfund. It is located inside the university campus, and called InnoHub. The university campus is in the central part of the city in Hung Hom, which is a convenient area regarding transportation.

The incubation centre was used to serve the whole community, including students and alumni. As a venue to support all kinds start-up activities, the incubation centre aims to promote innovation and entrepreneurship throughout the region, establish networks through linking students, entrepreneurs, academia and industry, and collaborate in projects and community practices.

To summarise, ‘Convenient’ is the second code of this location element. The Incubators’ centre is located at the university, which is convenient for all the stakeholders in terms of transportation and assessment.

2. Facilities

For the facilities, the university offers an incubation centre which is 10,000 square feet at the university. The main facilities of the incubation centre consist of:

- Workspace areas with fixed desks and hot desks, including 128 seats
- Event venue for hosting up to 40 people
- One-stop resource centre and reception counter
- Display area to showcase outstanding innovations by students and start-ups
- Storerooms, meeting rooms and a common area
- Mailbox and copying machines.

Appendix H shows the facilities of incubatees’ co-working space and the facilities inside the incubation centres at the 4th floor, InnoHub, The Hong Kong Polytechnic University. All the photos were taken by the author in May, 2019.

To summarize, for the facilities of Microfund, two second codes were generated, these being ‘Collaborate with other government organization’ and ‘Provide co-working space’. In this category, the main concern of incubator is to provide the necessary equipment and working space to incubatees. They also collaborate with other organizations for equipment needed by the incubatees.

4.3.4 Financial support

For the financial support, two first codes were applied which were ‘Finding investors’, and ‘Use of funding’. Details are explained in the following sections.

1. Finding investors

Microfund does not provide a service to help incubatees to find investors. Instead, they offer networking opportunities and mentorship services to meet that need. Normally, mentors

meet incubatees for 1½-hour sessions. Investors may also play the role of a mentor to review incubatees' business models to determine whether they are feasible or not.

For Microfund, the biggest challenge of incubating design start-ups is to scale up their business. In most cases, the incubatees join the incubation programme with one or two people for many years. This limits their ability to increase the size of the company.

According to the experience of Microfund, it is easier for the technology incubatees to find investors and sustain their business. Once they have successfully launched their products on markets, they can sustain or scale up the business based on mass production.

To summarise finding investors, one second code was proposed, which was '***No investor services provided'***. Due to the limited resources, business nature and business model, there are no investors services provided by the incubator to these design start-ups.

2. Use of funding

Microfund expected all the incubatees to operate and sustain their business without any funds from them. Therefore, the supported funds amount was HKD 120,000 per year. It includes all the business services and support in the programme.

Microfund reported that most of the design incubatees could handle their operational expenses well. With support from freelance jobs, these design entrepreneurs could sustain their businesses for a few years after graduating from the incubation programme. The milestone assessments were applied to monitor the use of funding and to prevent any potential abuse of the same. Incubatees receive the funding in three instalments, subject to their achievement of the applicable milestone assessments in one year.

To summarize, one second code was defined for the first code of use of funding, and this was ***'Based on incubatees' milestone assessments'***. Microfund expected that incubatees could normally sustain their business without funding. Furthermore, the use of funding is monitored through the milestone assessment to control the quality.

4.3.5 Business support service

For the business support services, there are two first codes, these being 'Mentoring' and 'Milestone assessment'. Details are provided in the following sections.

1. Mentoring

Mentors of Microfund are experts from various backgrounds in the university. Most of the mentors are investors who advise the incubatees on how to prepare their business models. The Incubator offers a one-on-one mentorship service upon incubatees' request. The mentorship service is free of charge. Every Wednesday afternoon, incubatees meet with mentors for this one-hour business clinic for business advice. The Incubator expected incubatees to gain advice from these mentors on how to prepare their business plan.

To summarise, a second code was reported as, ***'Given business advice'***. Microfund had a group of mentors from different backgrounds to provide business advice to all incubatees. Most of them are investors or industry mentors. They gave advice to incubatees after the semi-final presentation in order to follow up their business plan.

2. Milestone assessment

Microfund has three milestones in the assessment process. Incubatees qualify for receiving the funding in three instalments upon having succeeded with each milestone assessment. Incubatees who are nearing graduation are invited to apply to other incubation programmes for further funding.

Incubatees developed the milestones targets at the beginning of the application process. They discussed these with their incubator managers in order to establish grounds for their applications. Under normal circumstances the Incubator would advise them to reconsider these targets, because most of the applicants overestimate their ability, talent, time and budget. Incubatees also learnt how to refine their business plans in order to achieve their milestone assessment through attending training or a boot camp arranged by the incubator.

To summarise, a second code was identified and this was ***'Business development assessed in three stages'***. Microfund monitored the incubatees' business by three milestone assessments, all of which needed to be fulfilled by incubatees in the assessments. Then, incubatees can

receive a part of the funding. The mentors will also help incubatees to refine their milestone goals at the beginning of the application.

4.3.6 Networking

Microfund offers networking activities to all incubatees. These include a media interview, sponsored exhibition participations, corporation meet-ups and overseas tours to connect with potential industry partners, investors and customers. They also organise incubatees exhibition once a year to showcase incubatees' product and services at HKPolyU. This is free of charge.

For networking, two first codes were applied, these being 'Internal networking - among incubatees' and 'External networking – business connection'. Details are supplied in the following sections.

1. Internal networking – among incubatees

Microfund provides networking seminars by inviting experts from different industries. However, not all the incubatees are interested in participating in these networking activities. Most of the start-ups are very busy. If the networking activities are not related to incubatees' businesses, they will not join them. In Microfund, there are no networking activities tailored for design entrepreneurs. Microfund organises some exhibitions, in which incubatees can show their products or services. Neither the networking activities nor the exhibitions are compulsory for incubatees .

As a result, a second code was devised, this being 'Through training programmes and exhibitions'. Microfund organised training programmes and exhibitions for incubatees to connect with other incubatees within the university. They expected they could gain new insights through these networking activities.

2. External networking – business connections

Microfund provide publicity and networking support for incubatees. Incubators expected incubatees to connect with potential industry partners, investors and customers to develop their business. The service may be seen as a platform supplied by the incubator and it is not compulsory. Through these networking activities, incubatees may gain business support from

stakeholders, which are recommended and linked by the incubator. Particularly, Microfund will introduce industrial experts according to the business nature of start-ups.

To summarise, a second code was identified, which was '***Provide networking activities for all disciplines in voluntary based***. Microfund provides the networking support to incubatees on a voluntary basis. These networking activities involve different stakeholders from various industry sectors. They expect incubatees to connect business partners, clients and investors through these networking events.

4.3.7 Entrepreneurship training

Microfund offered a five-week lean Launchpad programme during the application period. It aims to support the students and alumni with business plans and entrepreneurship skills. This training is for all applicants to apply for Microfund. The Incubator does not have specific entrepreneurship training for designers. One first code was therefore generated, which was 'Entrepreneurship training organised by incubator'. Details are given in the following sections.

1. Entrepreneurship training organised by incubator

Incubator views the entrepreneurship training as the chance to advise applicants about entrepreneurship, although they know this kind of knowledge cannot be taught in the classroom only. They use the funding scheme to encourage students or alumni to apply for funding. Microfund training approach addresses the stages in the business life cycle, from start-ups where incubatees develop by ideating, conceptualising, creating and validating, to establish ventures and finally to scale up. According to this fundamental business development stage, the incubator provided an ecosystem with trained students and alumni and supplied them with the opportunities of collaborating with other universities and science parks.

Microfund provides a two-day classroom training session on business model development and its modification. Incubatees have access to the incubator's one-on-one mentors' advisory service as well. The aforementioned process is considered to be an entrepreneurial education process, in which the incubatees learn the theoretical matters and then apply their new-found knowledge and skills in their businesses practice.

To summarise, a second code was found, which was ***'Pre-incubation training'***. Microfund offers a series of business and entrepreneurship training for incubatees during the period of applying for the programme. Incubatees learn business skills and receive advice from the mentors before they get an award from the programme.

4.3.8 Summary of incubator's perspectives on business incubation process of Case B – Microfund

In this section, the incubator's objectives and the six categories of business incubation process of Case B – Microfund, a university-based incubator are reviewed. 14 second codes were reported as the results (Table 4.4):

Table 4.4 Summary of reported second codes of incubator's expectations and the six categories of BI process of Case B – Microfund

		First codes	Second codes
Incubator's objectives		**Incubator's objectives**	(1) Success in commercial start-ups projects (2) Business in social impact
BI process category		**First codes**	**Second codes**
1. Selection process and Exit policy	**Selection process**	Selection criteria	(3) Difficulties of business model
	Exit policy	Exit policy	(4) Apply other funding to continue and scale-up
2. Infrastructure		Location	(5) Convenient
		Facilities	(6) Collaborate with other government organisation (7) Provide co-working space
3. Financial support		Finding investors	(8) No investors services provided
		Use of funding	(9) Based on incubatees' milestone assessments
4. Business support service		Mentoring	(10) Given business advice
		Milestone assessment	(11) Business development assessed in three stages
5. Networking		Internal – among incubatees	(12) Through training programmes and exhibition
		External – business connections	(13) Provide networking activities for all disciplines in voluntary based
6. Entrepreneurship training		Entrepreneurship training organised by incubator	(14) Pre-incubation training

For the ***incubator's objectives***, two second codes were discovered. The main concerns of the incubator's objectives of the programme were that they expected incubatees' projects to be commercialized and have a social impact on the society.

For the first categories of ***selection process and exit policy***, two second codes were found. The main concern for incubator is whether incubatees have a good business model and their business development after they graduate. They will provide information of other funding resources for incubatees to scale-up their business.

For the ***infrastructure***, three second codes were developed. The Incubator considered the convenient means of transportation to the incubation centre for incubatees, provided co-working space and collaborated with other organizations to supply the special equipment for incubatees.

For the ***financial support***, two second codes were developed. No investor services and extra funding are provided to incubatees. Incubatees can connect with investors through networking sessions. The incubator will monitor incubatees' business performance through milestone assessments to control the use of funding.

For the ***business support service***, two second codes were discovered. The incubator has a list of mentors at the university to provide business advice to incubators. The incubator manager will monitor their business development through the milestone assessment.

For the ***networking***, two second codes were discovered. The main purpose of all the networking activities is to provide a platform for incubatees to meet voluntarily with potential investors, customers or business partners due to their busy schedule.

One second code was discovered in the last category of ***entrepreneurship training***. Incubators organise entrepreneurship training when the incubatees apply for the programme. This is a form of pre-incubation entrepreneurship training. All the applicants learn business skills before the incubation. This is not specific to entrepreneurship training for designers.

4.4. Summary of incubator's perspective of the two cases

In this chapter, Incubator's perspectives on expectations of the business incubation programmes and the six categories of the business incubation process were discussed in the two cases. Second codes of each case were generated and reported as the results of data analysis. Table 4.5 below shows the summary of all the second codes from Case A- DIP and Case B- Microfund.

Table 4.5 Second codes result from incubators' perspectives

Incubator's objectives	First codes	Second codes	
		Case A – DIP (Government-based)	**Case B – Microfund (University-based)**
	Incubator's objectives	(1) Become a successful entrepreneur in business (2) Sustainable business	(1) Success in commercial start-ups projects (2) Business in social impact
BI process category	**First codes**	**Second codes**	
1. Selection process and Exit policy	Selection process: Selection criteria	(3) Combinations of different partners	(3) Difficulties of business model
	Exit policy	(4) Amount of government funding (5) Increased revenue and staff, and a follow-up survey	(4) Apply other funding to continue and scale-up
2. Infrastructure	Locations	(6) Close to other design companies	(5) Convenient
	Facilities	(7) Necessary standard equipment for office (8) Provided different spaces based on incubatees' needs	(6) Collaborate with other government organisations (7) Provide co-working space
3. Financial support	Finding investors	(9) The role of the incubator	(8) No investor services provided
	Use of funding	(10) Limited resources	(9) Based on incubatees' milestone assessments
4. Business support service	Mentoring	(11) Gain different perspectives from mentors (12) Depends on the entrepreneurs' attitude	(10) Given business advice
	Milestone assessment	(13) Incubator's advice only for incubatees' reference	(11) Business development assessed in three stages
5. Networking	Internal - among incubatees	(14) Train incubatees' pitching skills	(12) Through training programmes and exhibition
	External - business connections	(15) Opportunities for exposure to get business orders	(13) Provide networking activities for all disciplines in voluntary based
6. Entrepreneurship training	Business training organised by incubator	(16) Train incubatees to become successful entrepreneurs	(14) Pre-incubation training

Firstly, the ***incubator's objectives*** were discussed. Four second codes were generated in two cases. Although both place emphasis on success, DIP focuses on the successful design entrepreneur, while Microfund targets the successful start-up businesses. Another objective of the DIP is the sustainability of business, while Microfund is for social impact. This implies that, as a government-based incubator, the objective is related to the development of design as a specific industry sector. However, as a university-based incubator, it aims to contribute successful start-up projects from staff, students and alumni, as well as high social impact in general.

In the category, ***selection process and exit policy***, five second codes were found in two cases. Among them, two are related to the selection process, while three are for exit policy. For the selection process, distinct coding results are reported. DIP concerns the involvement of various partners to the solid knowledge and experience base of the founder team. Microfund emphasize the difficulties associated with the business model in general. The two cases have similar views on the exit policy. Both consider whether the start-ups could sustain or scale up their business through obtaining other funds after graduation.

In the category ***infrastructure***, six second codes were found in the two cases, two about location and four for facilities. For the element of location, the two cases identify the importance of the convenience to their partners and potential clients. Concerning the facilities as infrastructure, special requirements for equipment and spaces are recognized by the incubators. Besides standard facilities, co-working space for community building and special equipment and space for design start-ups are reported.

In the category ***financial support***, four second codes were found in the two cases. Among them, two codes were about finding investor, while three codes were for use of funding. For the element of finding investors, the two cases identified the importance of investors. However, they admitted that the incubator only introduced investors to incubatees according to their business readiness. Concerning the use of funding, limited funding resources for design start-ups are reported.

In the category ***business support service***, five second codes were found, three of which related to mentoring, and two to milestone assessment. For the mentoring, gaining advice

from various perspectives is reported in the two cases. A special point is raised about the effect of mentorship, which may have been influenced by the attitude of incubatees. Concerning milestone assessment, Microfund would appear to have a more rigorous approach, with three assessments in line with the incubation process, while DIP only offers advice as reference to incubatees.

In the category of ***networking***, four second codes were found in both cases. Two are related to internal-among incubatees, while the other two are about external-business connections. For the internal network among incubatees, the two incubators viewed the training programme as an opportunity for connecting the incubatees. Concerning the external network for business connection, the two incubators shared the same purpose of exposing the start-up to the stakeholders with different solutions.

In the last category, ***entrepreneurship training***, two second codes were found in the two cases. The purpose of the two training programmes was to improve the chances of success, although they offered the training programmes at two different times. That offered by the DIP was during the incubation period, while that of the Microfund was before the incubation phase and hence presented as a pre-training option.

To conclude, it is reported that there are four aspects of relevance to design start-ups. Firstly, both incubators acknowledged the difficulties of a business model for design start-ups in general. Secondly, they supplied standard equipment and co-working space for incubatee community building. Thirdly, limited resources were available for design start-ups. Fourthly, both incubator cases were organising networking activities for design start-ups for all disciplines.

CHAPTER 5. THE INCUBATEES' PERSPECTIVES OF THE TWO CASES: DESIGN INCUBATION PROGRAMME AND MICROFUND

CONTENT

5.1. Chapter introduction

In this chapter, the expectations of incubatees of the incubation programme and six categories of the incubation processes of the two cases are reported. As last chapter, the main structure refers to the six categories of the business incubation process, including 1) selection process and exit policy; 2) infrastructure; 3) finance support; 4) business service support; 5) networking; and 6) entrepreneurial skills training. The results contribute to the second sub-research question defined in this research, which is ***'What are the design incubatees' expectations and perspectives on their business incubators in terms of services and support?'***

As was the case for Chapter Four, the first codes generated from the literature review which was reported in Chapter Two were applied as a frame for data collection and analysis. After analysing the data, the second codes were generated and shown in each category. In the following sections, the two cases are introduced accordingly. The interviewees' quotations of Case A – DIP's incubatees, are referred to as D1 to D18 (see Chapter 3, Table 3.5). The Case B quotations – Microfund's incubatees, are given as M1 to M12 (see Chapter 3, Table 3.6).

5.2. Case study A – Incubatees' perspectives on DIP

5.2.1 Incubatees' expectations before applying for the programme

Before applying for the DIP, Incubatees had arrived at their initial understanding and expectations of the incubation programme. This was the starting point for the information which was mainly collected from the interviews. The first code of this category was recorded as ***'Incubatees' expectations'***. As a result, the incubatees' expectations were reported in three areas.

The first of the incubatees' expectations was that of office rental fees and the related funding (reported by D1). This was also the main motivation for the incubatees to apply for the DIP, since it offered them rent-free office space. For example, an incubatee interviewee made the following remark about having an individual office supplied by DIP:

> *We want to have an individual office and independent business operations; we treat the office as a buffer zone to run our business,*

make it healthy and strengthen our market through DIP (cited from interview of D1).

The incubatees lacked the necessary capital to run a business as new start-ups and small companies. Some incubatees suggested funding subsidies for buying equipment and hiring part-time staff. The expectation of funding was also extended to more shared spaces and equipment, in addition to a material centre.

The second expectation of the incubatees was that of having opportunities to increase their network (stated by D1,D10, D11, D16). Most of the incubatees expected that they could develop or expand their businesses through networking events facilitated by the DIP. In particular, incubatees appreciated the opportunities of connecting with other incubatees to establish start-up relationships and share experiences. An example of a statement, that being from D10 is:

I expected DIP to have more resources and network opportunities to build up my company's reputation. My neighbour in this centre is also a start-up and we may build relationships and connections and create atmosphere (cited from interview of D10).

D16 expected that DIP would offer mentorship and networking to incubatees that could help their business. They thought networking and mentorship would be useful for them. Other incubatees expected networking; they wanted to expand their network, and not only in their own design field; they also wanted to know more designers or potential clients. They expected DIP would line up tour visits to different events to broaden their perspectives.

The third expectation was that of acquiring business skills. Some incubatees expected DIP to organise training to teach them how to run a start-up business. D8 remarked:

I expected DIP to provide business support and financial knowledge to teach me more about these business aspects. Someone in the programme may help me with how to do it. Even though I am not an outgoing person, my intention is to do business because of the funding, and I may learn something from the incubation programme.

D9 expected the DIP to invite some start-up design companies that had proven success to give presentations at seminars or share their experiences.

To summarise, three second codes were generated, ***'Financial assistance'***, ***'Build up business network'*** and ***'Learn entrepreneurial skills'***. Incubatees expected that the DIP would offer a certain amount of the funding for them to set up their office and buy equipment, as well as present business opportunities for them to build up the business network to extend their market and broaden their perspectives. They also expected that DIP would offer business training for them to increase their knowledge of finance and business aspects. Figure 5.1 shows details of the most significant of incubatees' expectations of the incubator.

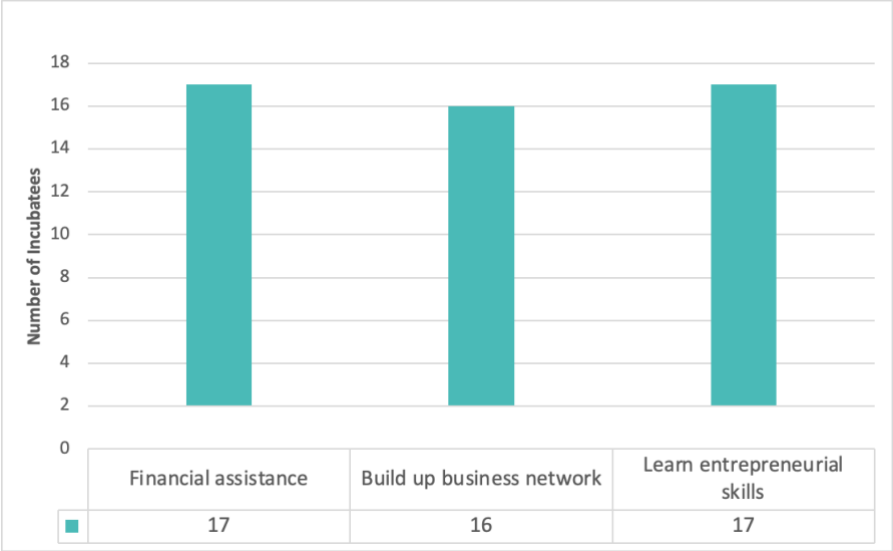

Figure 5.1 Incubatees' expectations (Case A)

5.2.2 Selection process and exit policy

DIP's mandatory criteria include qualitative admission criteria, and incubatees have to complete and include a business plan with their applications. Two main first codes were therefore developed. For the selection process, one first code was '***Selection criteria'***. For the exit policy, the first code was '***Exit policy'***. The details of these first codes are explained in the sections below.

1. Selection process – selection criteria

The selection criteria refer to the entrepreneur or the team. DIP requires of applicants to have two full-time staff members, including the applicant, as part of the incubator's admission criteria. Numerous incubatees found this criterion difficult to meet. Few incubatees form a team of founding members when establishing their start-up businesses. Incubatees (D13)

were aware that two full-time staff members were an admission criterion, but they still managed everything by themselves for their business. The mandatory criterion of two full-time staff members appeared to be a challenge for incubatees.

Incubatees were concerned about the cost of full-time staff. Many incubatees (D15, D13) hire part-time staff to manage the administration and accounting work. Incubatees concerned about the funding which cannot be used to hire full-time staff. Salaries are a problem if they hire more experienced people. They cannot afford to pay around HKD 20,000 per month over a period of six months.

To summarise, a second code was ***'Lack of full-time partners'***. DIP expected the incubatees' company to have at least two full-time staff working in their company. However, incubatees were concerned that they did not have enough funds to hire full-time staff. Their tendency was to ask friends and relatives to work part-time in their company. Incubatees thought that it was difficult to achieve this incubator expectation.

2. Exit policy

The incubatees viewed the exit policy from three perspectives, these being achievement from two-year incubation, follow-up service, and future plan.

On the subject of the achievement from the two-year incubation, incubatees (D10, D11) considered that the duration of incubation period was too short. They could only start up their business, without achieving anything concrete or expanding the scale. Other incubatees, having accumulated resources and reputation before joining the programme, aimed at secure funding.

The follow-up services provided by incubator included organisation of seminars. In addition the incubator asked whether the incubatees had experienced business problems and offered support such as mentoring. On the one hand, the incubatees appreciated the support supplied by incubator but the other, they thought they could not rely on an incubator to help them too much. They had to run their business by themselves.

Almost all incubatees planned to expand their businesses in the future. They wanted to expand by venturing into retailing, entering overseas markets and the Mainland China market,

or applying for additional funding. Some incubatees planned to expand their business through organizing some events and commercial projects. Cash flow and living expenses were the main concerns of some the start-ups. If they could not solve their financial problems, they considered that they might need to close their companies within one to two years after DIP graduation.

To summarise, two second codes were generated for the exit policy, ***'Longer incubation period'*** and ***'Longer follow-up business services'***. Incubatees expected that DIP would follow up on their businesses after graduating. They thought that the two-year incubation period was only a start for their business; most of them planned to apply for other funding to continue their businesses after incubation(Figure 5.2).

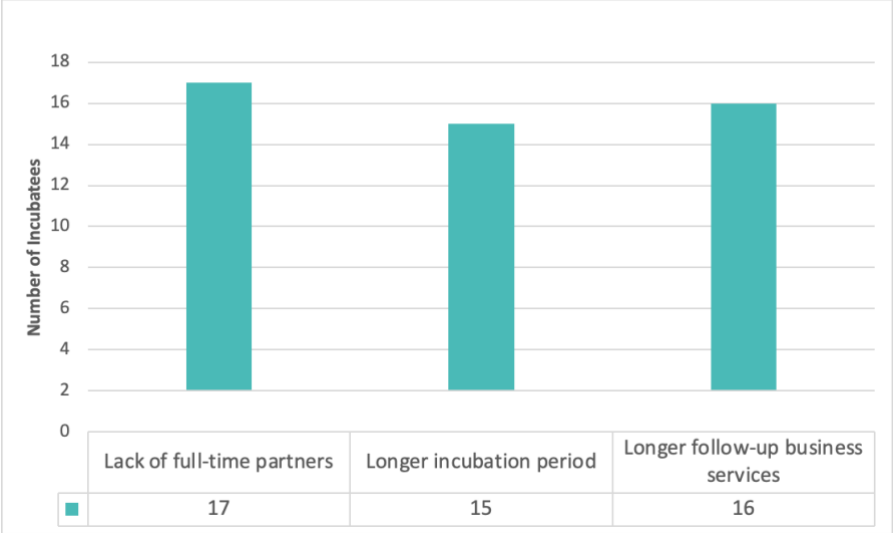

Figure 5.2 Selection process and exit policy (Case A)

5.2.3 Infrastructure

The second category of the BI process in DIP is infrastructure. Two first codes were applied to guide the data collection and analysis. They are '***Locations'*** and '***Facilities'.***

1. Locations

Incubatees were concerned about three main issues regarding the location, these being the cost of office space, the environment and the selection of the office location. For the given location, the two incubation centres of the DIP provided co-working space, including a desk in the common open office space and an individual office room. The office rental for the first

year is free of charge, but the second year's rental is charged at a discounted rate, HKD 13 per square foot per month for the incubation room, and HKD 900 per incubation company per month for the co-working space. The maximum amount of the rental assistance fund is HKD 240,000.

In terms of the environment, the incubatees were concerned about the furnishings and whether the building had a professional appearance or not (D1, D2, D3, D4, D8, D9, D10, D11 and D14). Incubatees were also concerned about the convenience of location to other design studios, resources, partners and their homes.

Selection of location is influenced by many factors. The DIP Kowloon Bay centre targets fashion design companies and the incubator consequently gives priority to those types of enterprises. Design incubatees are assigned by the incubator to offices at the different incubation centres based on their design discipline and needs. The size of the room depends on the size of the incubatee's company. Some of the incubatees could choose the office centre, but some of them could not. The incubator assigned the office for specific design discipline incubatees. The incubatees were also concerned about transportation, networking and ease of access when they selected the centre for their office.

To summarise, one second code was generated, the location, ***'Close to suppliers and living space'***. Incubatees expected the incubation centre should be located close to their suppliers and living space; this would be more convenient for them to travel to.

2. Facilities

Incubatees shared many opinions on the facilities supplied by the DIP. Overall, these could be classified into two groups, functional space and equipment.

1. Functional space

Besides standard office space, design incubatees were looking for special design functional space, which may vary according to different design disciplines. In this case, the functionality of an office supplied by DIP may not satisfy the expectations of incubatees. They differ from tech start-ups, which required an office area with basic office equipment and computers. Due to different nature of design business, there are diverse requirements for functional spaces

in an incubation centre. For example, product or fashion design may require a showroom to display their products to clients. As regards product design, they expected that the centre would provide a workshop space, such as wood workshop with machinery and table saw. Interior design, multimedia and advertising design start-ups may not require a large space or retail outlet. Instead, a mere desk will be sufficient.

2. Equipment

The incubator centre was equipped with the necessary machinery. However, these were not of the expected professional standard or quality. As a consequence, the incubatees considered it necessary to purchase the equipment by themselves. For example, design incubatees had high expectations of the quality of the printing. Since the printer supplied by DIP could not satisfy their requirements, they bought their own colour copying machine. They could use the funding to claim the money from the incubation programme if they bought any new equipment for their businesses. As there is an Operation Expenses Fund (OEF), the incubatees can use this fund to claim for expenditure on office furniture and equipment, computers and accessories and related business equipment for use in the office. A maximum amount of HKD 30,000 is payable over the two years' incubation period for this purpose.

Some incubatees appreciated the fact that the incubator provided different pieces of machinery for them to use and technical assistance for using the equipment. Most of the incubatees recognised the incubator's efforts, since there were staff available who assisted them with handling the machines.

To summarise the facilities, two second codes were obtained, ***'Workshop with the necessary equipment'*** and ***'The functionality of an office space'.*** Incubatees expected that the DIP would offer them a workshop with the necessary equipment for specific design sectors. They also expected that DIP would have specialized design workshops with equipment and tools, as was the case in Silicon Valley, science parks or universities. Incubatees expected that the DIP would provide different equipment for incubatees to use. Figure 5.3 shows the tabulated results for the majority of incubatees' points of view about infrastructure and the other expectations.

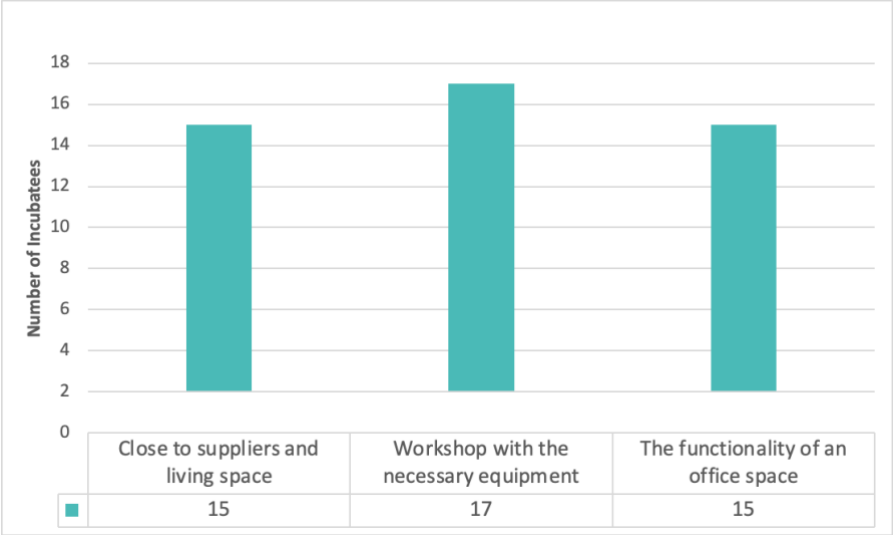

Figure 5.3 Infrastructure (Case A)

5.2.4 Financial support

Financial support is the third category of the BI process in this study. Two first codes were applied, ***'Finding investors'*** and ***'Use of funding'***.

1. Finding Investors

It was reported that not all design incubatees managed to secure investors when they joined business matching or networking activities organised by the incubator. Although they appreciated the efforts made by the incubator, they were not convinced that it was really helpful. DIP organised visits by potential investors from Mainland China to their office. Such visits normally focused on hi-tech start-ups rather than design start-ups. It is possible that the incubator did not know the most efficient way to help them:

> *They want to organise some events for us to participate in, and they tried very hard to line up with the big organisations or people from the Mainland, but it seemed that they organised these activities to visit only. It may have been because they don't have experience in the industry, and I think they will improve (cited from interview of D2).*

To summarise, for finding investors, one second code was generated, ***'Difficult to find related investors'***. Incubatees expected the DIP to assist them in finding investors who were interested in investing in their start-ups.

2. Use of funding

Two issues were raised by the incubatees about the use of funding. These were the procedure for using the funds, and the finance and accounting management. The budget is divided into three categories, these being 'Operation Expense Fund' (OEF), 'Promotion and Development Fund' (PDF) and 'Management and Design Training Fund' (MDTF). The incubatees could be reimbursed after using the applicable services, since incubatees could claim reimbursement up to 80% of the promotion cost. Design start-ups could use it to arrange exhibitions. Fashion incubatee spent a part of the budget on marketing, including photo shooting, video filming and leaflets. For a start-up with an established brand, the incubatees could utilize the funds to promote the brand through various activities. The funding also helped them to buy equipment, such as computers in the case of multimedia and graphic design incubatees. In addition, the DIP has a fund of HKD 240,000 for office rent, office equipment and computers.

Concerning the largest segment of investment in their businesses, the incubatees of different design disciplines varied in their answers. Product design incubatees prioritised the raw materials and design materials for a minimum order of the new product. Other incubatees were of the opinion that the design development stage was the most costly.

1. Procedure of using the funds

On the subject of the procedure required for using DIP funding, incubatees were required to submit quotations and related documents such as receipts of purchase or service used, following which they will be reimbursed within three to six months. Incubatees understood that the long reimbursement period was due to the fact that this was a government-based incubator, and responsible to the public for the use of its funds. Nevertheless, they considered that the process of reimbursement was slow. This was because some incubatees (D1 and D5) did not have sufficient cash flow to operate their businesses. The current reimbursement procedure was too complicated and inflexible (D2, D6, D9 and D12). As a result, they expected to receive their money quickly, instead of waiting for at least three months.

2. Finance and accounting management

Finance and accounting management were essential factors in business development. All the incubatees considered this to be the critical most challenge and the weakness of the majority design start-ups. They managed to handle the accounting issues using various solutions. Some of them tried to manage accounting by themselves, although they had no professional knowledge of it. They obtained knowledge from websites and used Excel forms to collate all the data, learning about the profit and loss statement step by step. As design entrepreneurs, if they spent too much time on learning accounting, then this would reduce the amount of time available to work on the design. Other incubatees found friends or relatives to help, but conceded that these might lack professional knowledge and so they could not help much. Other incubatees engaged accountants to work for their businesses. However, they still needed to know how to sell the products, look for retailers and wholesalers, and earn profit.

To summarise the use of funding, two second codes were generated, ***'Not enough cash flow'*** and ***'The flexibility of using the funding'***. Incubatees were concerned that they lacked sufficient money and cash flow to operate their start-ups. The flexibility of using the funding was important for them to utilize the funding effectively for their different design businesses (Figure 5.4).

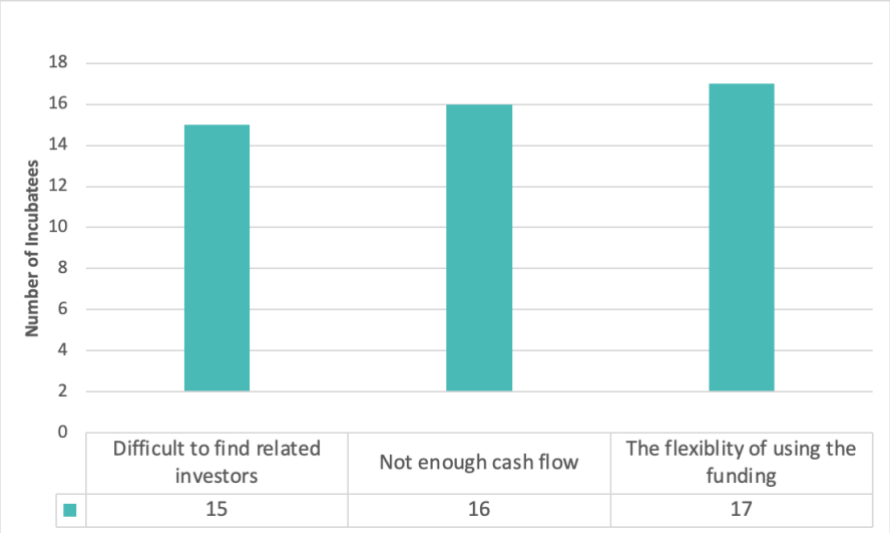

Figure 5.4 Financial support (Case A)

5.2.5 Business service support

Business service support is the fourth of the categories of the BI process in this study. Two first codes were applied, these being ***'Mentoring'*** and ***'Milestone Assessment'.***

1. Mentoring

DIP prepares a list of mentors for incubatees. The mentors are from various fields of expertise, including accounting, law, bank, investment, academic research, industry partners, DIP incubatees and alumni, business management, IT expertise, and buyers. Incubatees submit their requests and choose the mentors from a list supplied by DIP, based on their business needs. If the incubatees want to learn about intellectual property rights, they will choose a mentor from a law firm in the list. After having been matched with mentor, the incubatee has a first one-hour consultation meeting with that mentor. The fee is covered by the DIP. However, a number of incubatees considered that the advice given by mentors was unhelpful. The incubatees expected solutions to their problems and practical advice from mentors, and found the answers given somewhat general. For example, D10 stated that the mentors did not solve their problems and did not guide them on how to do business in design:

> *I asked them how to find more clients or get more business orders, and they told me that I must reduce my price. I only laughed about it. I found another mentor from an accounting firm. He was quite kind and gave me some advice, but it was not practical; we were only chatting at the meeting. I mean they do not guide me during the consultation meeting on how to do business. (cited from interview of D10).*

Few mentors were familiar with the design business. For example, an incubatee (D7) met with an accountant to help with their financial forecast and budget. The outcome was not particularly useful, because they did not understand their design business. The mentor gave advice on how to fine tune the accounting and budget, but gave no guidance about how to make forecasts and strengthen the company in half a year.

Th mentorship was for a short-term period, and incubatees indicated that a long-term relationship was. Their mentorship service was hourly based making it impossible for a mentor to track the progress of incubatees or continually offer them advice.

> *What the mentor said was quite useful, but they did not continue helping us – only one hour then and one hour at other times, that's it. We need to ask their advice about a project or a problem in long-term based, a long-term mentor relationship of tracking and giving advice to my business (cited from interview of D8).*

Further to limited and relevant industry experience, the mentor's age was another concern, and D14 remarked that most of the mentors were retired and they expected them understand their business, not to offer out-dated information about the industry.

As a result, incubatees either asked friends or other incubatees or solved the problems themselves, when they encountered difficulties. They would not request meetings with mentors. They also expected the Incubation Manager and mentors to give them advice on business growth.

To summarise, two second codes were obtained for mentoring. They are ***'Mentors are not familiar with design business'*** and ***'Long-term mentors'***. Incubatees expected the mentors to understand the design business and provide long-term mentoring service, instead of a time-based temporary service.

2. Milestones assessment

DIP conducted three milestone assessments in the 4th, 12th and 20th month during the two-year incubation period. The milestone assessments consisted of four sections, these being, 1) actual milestone achievement (including business development progress, the incubation services usage and business activities and sales revenue); 2) Actual financial status (including cash in bank, loans and paid-up capital); 3) Actual cash flow status (including cash in from loan, sales revenue and DIP funding) and 4) Events and business activities during milestone period (including product development, promotion and distribution channels). Most incubatees submitted their milestones assessments on their application form at the beginning. They normally gave low targets to ensure the fulfilment of the same. They submitted their projections of either product or design service development with the exact number of increased staff, clients, sales revenue, material and production cost, and marketing activities as their targets. However, some incubatees (D2, D8) who had start-up experience found the milestone assessment exercise was not useful.

To summarise, the milestone assessment, one second code was obtained, ***'The milestones were under their control'.*** Incubatees expected the milestone assessment to be easy to achieve. To achieve it, they normally set up a low expectation as assessment criteria for each milestone (Figure 5.5).

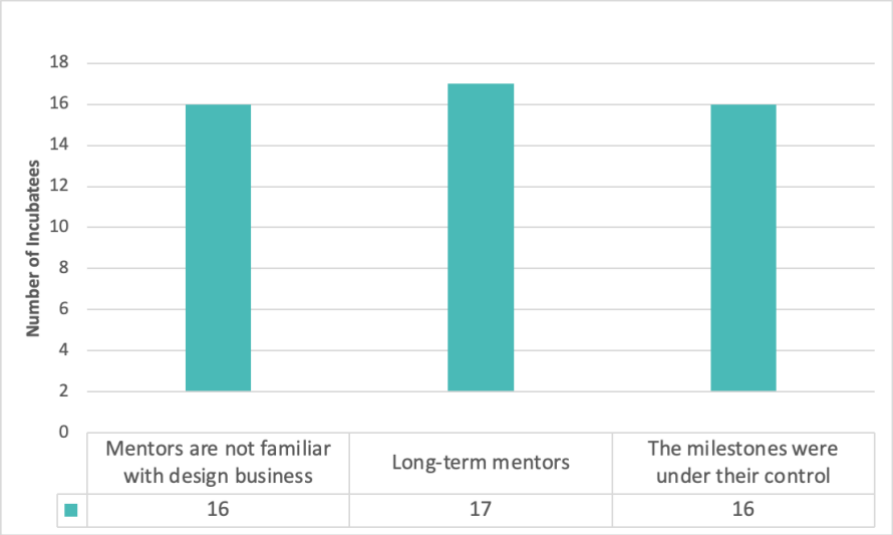

Figure 5.5 Business service support (Case A)

5.2.6 Networking

Networking is divided into the internal and external network. It offered contact resources to incubatees. Incubatees expected incubators to supply business matching or business network services to expand their market and create a start-up community. Two first codes were applied, ***'Internal networking - among incubatees'*** and ***'External networking – business connection'***.

1. Internal networking – among incubatees

Internal networking refers to activities linking incubatees. Most incubatees (D3, D6, D7, D9) agreed that the administrative staff of DIP were helpful in the matter of organizing these internal network activities, which were essential to interact with other incubatees in the centre.

The incubatees had two suggestions on improving the internal networking activities. One was to encourage design incubatees to organise some design events together and connect with the public. Another suggestion was to arrange the internal networking activities according the design areas so that the internal networking could impact upon the business referral. However, they all thought that the compulsory internal networking was unnecessary, because they all interacted with nearby incubatees on a daily basis.

To summarise, for internal networking-among incubatees, one second code was obtained, ***'Compulsory and voluntary based networking'.*** Incubatees expected the function of the internal networking to be related to the design industry. They were required to attend all the networking activities since these were compulsory.

2. External networking – business connection

Stakeholders of external networking included angel investors, business partners, clients, government, universities and suppliers. In the DIP, incubatees can be reimbursed from the marketing fund to a level of up to 75% of expenses incurred in promoting their services or products. Incubators organize some networking activities to connect incubatees and external stakeholders and to forge their business relationships.

On the one hand, incubatees acknowledged the DIP's efforts in assisting them to find suppliers or improve the facilities. On the other hand, most of incubatees considered that the external networking sessions hosted by DIP were not useful. Some reasons are as follows. Firstly, the networking events were too formal and could not instigate further discussion among participants. The second reason was that the events were not customized for design start-ups. For example, DIP organized some networking with investors, who were more interested in tech start-ups, rather than design start-ups. Thirdly, incubatees preferred to attend business-related networking events to expand their resources, instead of attending gatherings with design friends. Fourthly, incubatees indicated their interest in the networking to extend their knowledge of other design disciplines and meet potential clients. The final suggestion was to set up a community consisting of experts from other businesses, incubatees, universities, investors and experts. They could share their experience with incubatees and refer further resources to incubatees according to their expertise.

To summarise, for the external networking-business connection, two second codes were generated, ***'Different needs of each design business'*** and ***'Connect with other stakeholders'.*** Incubatees expected the DIP to organise the networking activities which would help them to find clients or other stakeholders, such as suppliers. They thought the incubator did not

understand their design business

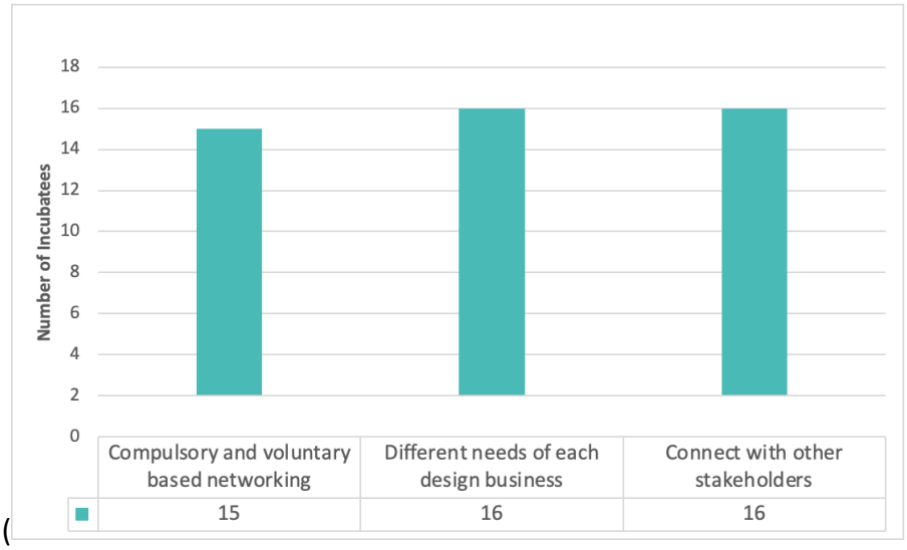

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Figure 5.6).

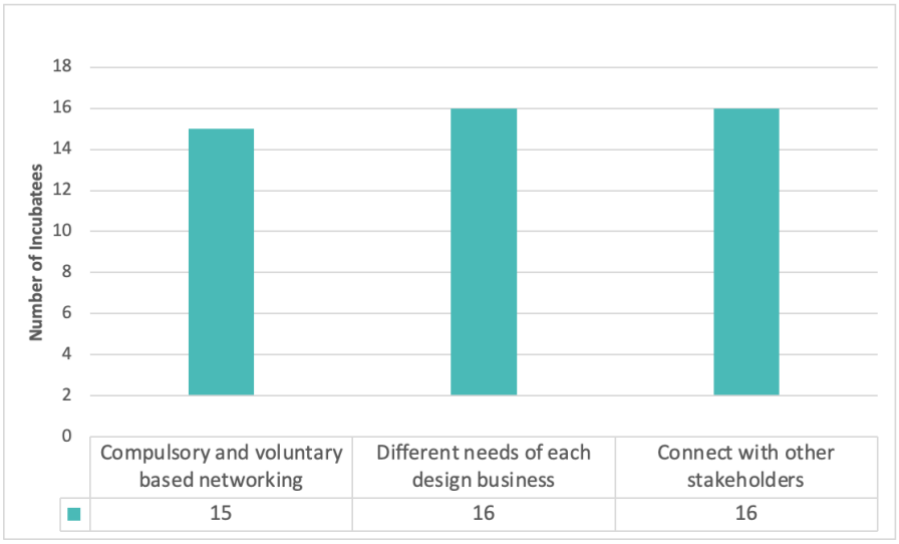


Figure 5.6 Networking (Case A)

5.2.7 Entrepreneurship training

Entrepreneurship training is the sixth categories of the BI process in this study. One first code was identified, which was ***'Business training organised by incubator'.***

DIP arranges various training sessions, some of which entail compulsory attendance or require a minimum attendance rate of 50%. Incubatees can be reimbursed with 80% of the training costs if they attend the courses. However, incubatees were concerned about the

quality of the training. There are three main concerns: Firstly, incubatees expected that the DIP should invite trainers whose fields of expertise were related to their design field. In addition the training programme should include customized content for design start-ups, instead of general content.

> *The trainer expected us to build a corporate company, but I think he was not familiar with the Hong Kong market. Sometimes guests were invited to talk about how they run their businesses. The trainer expected incubatees to grow their business by dividing staff into marketing and sales teams as if we were large corporations and affluent companies, but we are only designers (cited from interview of D1).*

Incubatees were interested in business-related training. A number of them (D1, D2, D3, D8, D13) had to learn the subject matter by themselves. The training may also be linked to networking, because incubatees valued the experience shared by graduated incubatees.

The third issue was that of about mandatory attendance of training sessions. Some of the incubatees (D3, D6, D9) thought that this was unnecessary.

To summarise, for the business training organised by incubators, two second codes were generated, ***'Design-related business sharing and learning'***, and ***'Learnt from experience by themselves'.*** Incubatees expected that the entrepreneurship training should be tailored for different design businesses, and most of them learnt business skills by themselves or used their past experience (Figure 5.7).

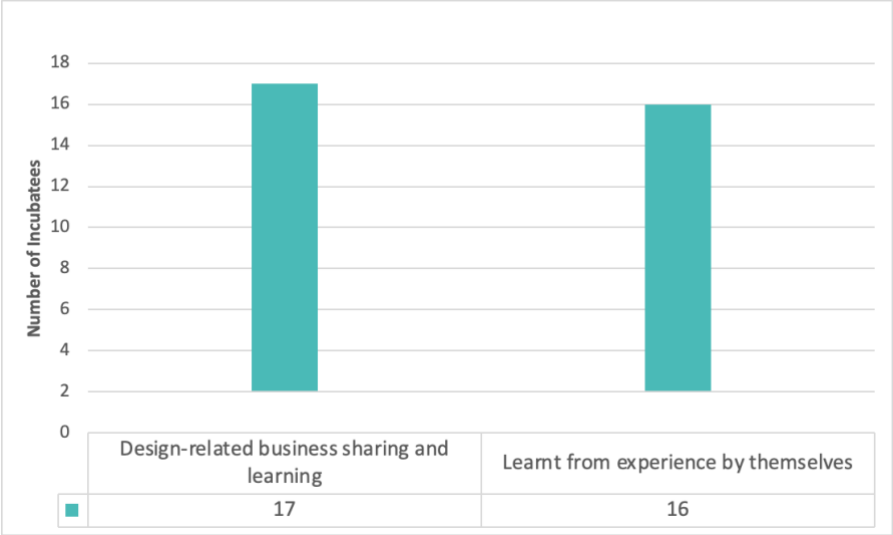


Figure 5.7 Entrepreneurship training (Case A)

5.2.8 Summary of incubatees' perspectives on business incubation process in Case A – DIP

In this section, 20 second codes of case A: DIP are reported according to the six categories of the business incubation process (see Table 5.1).

Table 5.1 second codes results of Case A - DIP from incubatees' perspectives

Incubatees' perspectives		**First codes**	**Second codes- Incubatees' perspectives**
		Incubatees' expectations	(1) Financial assistance (2) Build up business network (3) Learn entrepreneurial skills
BI process category		**First codes**	**Second codes**
1. Selection process and Exit policy	**Selection process**	Selection criteria	(4) Lack of full-time partners
	Exit policy	Exit policy	(5) Longer incubation period (6) Longer follow-up business services
2. Infrastructure		Locations	(7) Close to suppliers and living space
		Facilities	(8) Workshop with the necessary equipment (9) The functionality of an office space
3. Financial support		Finding investors	(10) Difficult to find related investors
		Use of funding	(11) Not enough cash flow (12) The flexibility of using the funding
4. Business support service		Mentoring	(13) Mentors are not familiar with design business
			(14) Long-term mentors
		Milestone assessment	(15) The milestones were under their control
5. Networking		Internal – among incubatees	(16) Compulsory and voluntary based networking
		External – business connection	(17) Different needs of each design business (18) Connect with other stakeholders
6. Entrepreneurship training		Business training organised by incubator	(19) Design-related business sharing and learning (20) Learnt from experience by themselves

For the ***incubatees' expectations*** before applying for the programme, three second codes were discovered. The main concerns for incubatees were networking, financial assistance and entrepreneurial skills. They expected that DIP, as a government-based incubator, would support the establishment of their design start-ups with certain amount of funding, help them to connect to a stronger business network and have the ability to enhance their entrepreneurial skills.

For the first categories of ***selection process and exit policy***, three second codes were reported. Incubatees expressed their concerns about the requirement of two full-time staff in their team. For the exit policy of this programme, incubatees expected the incubator to provide a longer incubation period and with follow-up business services. With these, they would have more chance to sustain their business.

For the ***infrastructure***, three second codes were developed. The incubatees preferred an office located close to their suppliers, living space and business partners. They required a

design workshop in the office space and the necessary equipment for different design business provided by DIP.

For the ***financial support***, three second codes were obtained. Most of the incubatees could not find investors interested in the design industry. Lacking sufficient cash flow is another constraint for these design start-ups. They suggested the funding should be flexible and take the nature of the different disciplines within the design business into consideration.

For the ***business support service***, three second codes were discovered. Mentors were seen to have limited knowledge about the design industry and challenges faced by the design incubatees. The mentoring service was time based. However, incubatees suggested that long-term mentoring might be more effective.

For the ***networking***, three second codes were identified. All the networking sessions are compulsory, but not all of them related to design business. Incubatees expected that incubators should connect with other external stakeholders related to their design business nature.

For the last category***, entrepreneurship training,*** two second codes were discovered. Incubatees expected that the entrepreneurship training should be tailor-made for their design businesses. They thought that they could learn business by sharing experience among design incubatees or design start-ups.

5.3. Case study B – Incubatees' perspectives on Microfund

In this section, incubatees' perspectives on the business incubation process in terms of services and support in Case B were analysed. Six categories of the BI process are also applied as an outline for discussion. Incubatees' expectations before applying for the programme are discussed to understand their main objectives and expectations before applying for the programme.

5.3.1 Incubatees' expectations before applying for the programme

'Incubatees' expectations' is the first code to guide data analysis. Incubatees reported their expectations which are divided into three aspects. Firstly, with reference to the incubatees'

expectations, they regarded mentorship and business knowledge as being essential, especially the mentorship with advice and guidance on some basic business knowledge. Secondly, some incubatees (M4, M5, M7 and M9) indicated their expectations of funds supplied by Microfund, which they could use to develop a prototype and promote it to the market. As the result, they could apply for further funding to expand their business. Thirdly, they also looked for business knowledge to learn about business.

To summarise, for the expectation of the incubatees before applying for the funding, three second codes were obtained, ***'Provide business guidance through mentorship'***, ***'Enhancing start-ups' business knowledge'*** and ***'Funding support'***. In addition to the funding support provided by the incubator, incubatees expected the incubators to offer start-up business training for them to learn business (Figure 5.8).

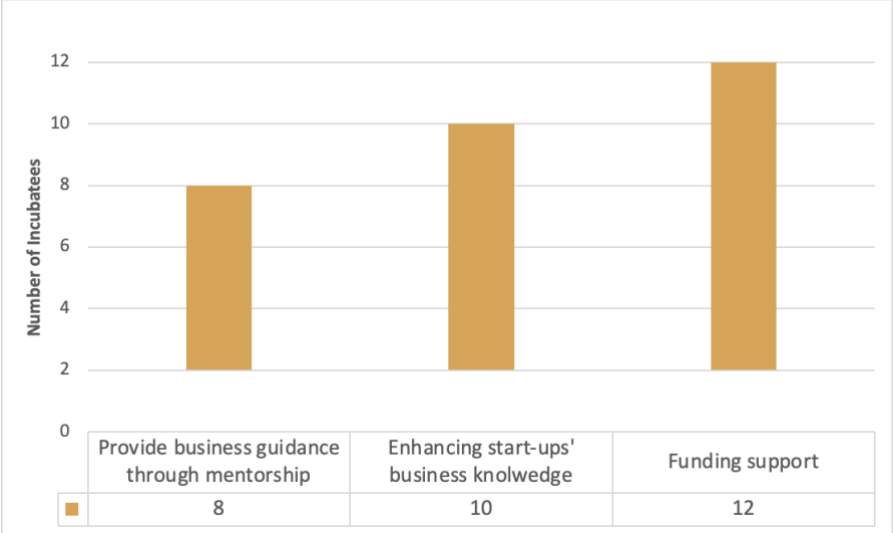


Figure 5.8 Incubatee's expectations (Case B)

5.3.2 Selection process and exit policy

'***Selection criteria'*** and '***Exit policy'*** are the two first codes applied in this first category of BI process.

1. Selection process – selection criteria

According to Microfund's admission criteria (see Chapter 4), there are no mandatory criteria for the number of company founders. Some incubatees used their final-year projects to apply

for the incubation programme, since the targeted incubatees are university students and the alumni.

There are no limitations regarding the number of full-time staff in the team. Either an individual or a group of people are eligible for the application. Most of the design incubatees applied jointly with their classmates. These teams were normally established during their studies and for the proposal. They were confident when they applied for the programme. However, this didn't imply successful results. Some of them closed their companies due to various reasons.

As for the selection criteria, incubatees were concerned about the possibility of developing their businesses. During or after Microfund incubation periods, they had the option to apply for and receive other funds to support their businesses.

To summarise, for the selection process of selection criteria, one second code was generated, ***'Different expectations and personal development of each founder'***. Incubatees vary in their expectations and future plans for their career development.

2. Exit policy

Microfund referred incubatees to apply for other funding after they graduated from this programme. For design start-ups, the Microfund encouraged the graduates to apply DIP programme or other design-related funding to continue their businesses. As a pre-incubation programme, Microfund aimed to support students or alumni without start-up experience, and to develop their ideas or projects by supplied funding and training. There is no assessment of performance of an incubated team after graduation. However, the result was somewhat ineffective. Firstly, some start-up teams may not continue their businesses and the original founders may all quit. Secondly, some founders may leave the existing team and prepare to launch a new start-up with their accumulated experience. Thirdly, a number of incubatees (M2, M7, M5) found other funding by themselves after graduating from Microfund to continue their businesses.

To summarise, for the exit policy after incubation, one second code was generated, ***'Living expenses and funding resources'***. Most of the incubatees were concerned about their future

careers so that they could sustain their living expenses. Other incubatees planned to apply for external funding resources to continue their businesses (Figure 5.9).

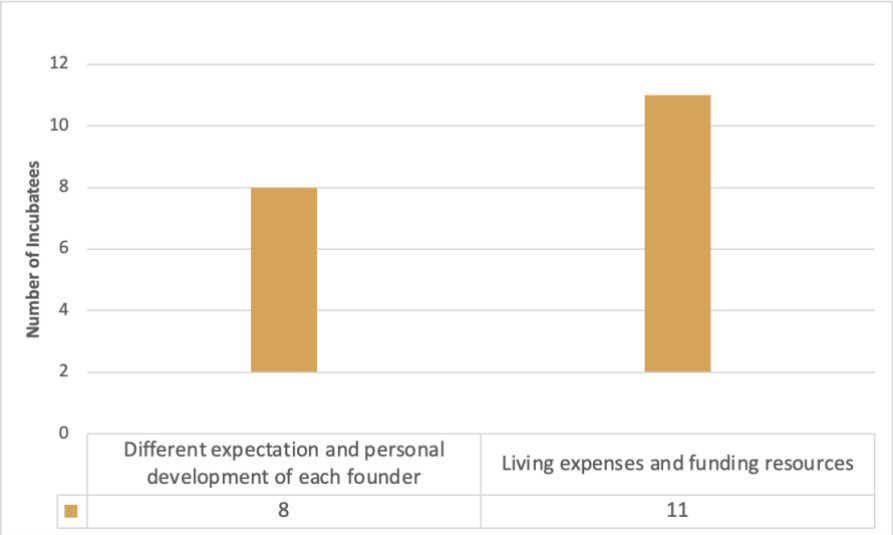


Figure 5.9 Selection process and exit policy (Case B)

5.3.3 Infrastructure

The second category of BI process in Microfund is infrastructure. Two first codes were applied, these being '***Locations'*** and ***'Facilities'.***

1. Locations

Microfund occupies one floor of the Innovation Tower in the Hong Hung campus of the Hong Kong Polytechnic University. Most of the incubatees were satisfied with the location of the incubation centre, because they had studied at the university. Microfund provides co-working space and a fixed mailbox to incubatees. Some incubatees commented that they did not use the office, since their product development was not yet ready in this pre-incubation stage.

To summarise, ***'Convenient'*** is the second code reported for location. Most of the incubatees found that the location of the incubation centre in the university was convenient.

2. Facilities

For the office space, Microfund provided co-working space to the incubatees in the incubation centre at the university. The details of the office space were introduced in section 4.3.3. Most of the incubatees used the co-working space very often. Some incubatees thought that the

incubator had too many rules regarding the use of the facilities. They expected to use the co-working space for meeting clients and using it as a personal office. However, the incubator didn't assign any desks to them. The incubator allowed them to use the facility even after they had graduated from the programme.

> *They expanded our stay in the co-working space for a few years and we can use most of the basic facilities such as the Internet, working desk, meeting room, discussion corner and coffee maker. They tried their very best to connect us with outsiders and arranged networking activities which allowed incubatees to become involved and participate (cited from interview of M7).*

Some of the incubatees commented that they could not access the facilities provided by other departments in the universities, such as engineering, design and laboratories. To develop their ideas and make prototypes, some incubatees requested design tools, such as wood cutting, laser printing or 3D printing, which were not available in the co-working space of Microfund. However, they could not access these facilities in the university, and Incubators only referred them to the services of external suppliers.

Regarding the facilities, two second codes were generated, '***Cannot gain access to the university's facilities'*** and ***'Expected an individual office'***. Most of the incubatees were concerned about their access to the university's facilities, such as laboratories or design workshops, which they viewed as being more professional. However, they could not access such facilities. Some of the incubatees expected the incubator to provide individual offices and workstations for them, instead of a temporary desk (Figure 5.10).

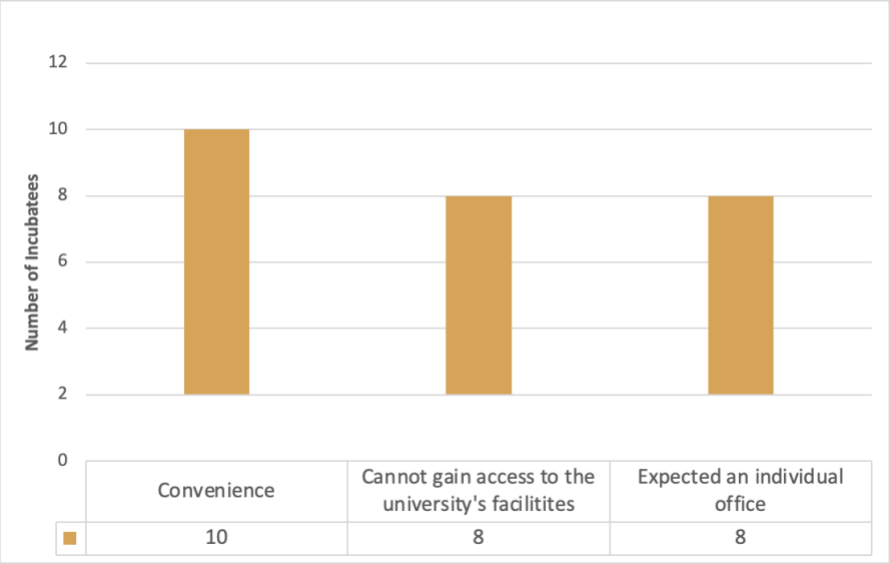


Figure 5.10 Infrastructure (Case B)

5.3.4 Financial support

For the financial support, two first codes were applied, which were ***'Finding investors'*** and ***'use of funding'.***

1. Finding investors

Incubatees varied in terms of their expectations. Some of the incubatees (M4, M8) expected the incubator to help them to find investors. Although the incubator offered this service, the result was somewhat ineffective due to the diverse business nature of design. It was reported that some investors were only interested in investing technology start-ups. As a result, some incubatees indicated that the incubator did not assist them in making contacts with investors or bankers. As a consequence they had to find investors by themselves. Microfund allows incubatees to apply for incubation funding from other sources. Most incubatees therefore applied for other funding to sustain their businesses.

When comparing investments in design to property investment in Hong Kong, it is evident that only the minority of investors were prepared to invest money in creative businesses. Even that minority was more inclined to invest in high-technology start-ups rather than design start-ups. Investors interested in design start-ups were further inclined to consider whether the start-ups had potential clients or strong branding, two inter-related elements. Investors'

decisions also depended on the start-up's turnover. This implies that a more mature start-up may have higher chance to attract investment.

Incubatees (M7 and M9) considered that their start-ups were not at a stage where they were ready for investment. In this case, they did not pay much attention to activities related to finding investors.

> *I understand that the investor may need to bear in mind that our product was not yet finished to launch to the market … As an investor, they want a product that is already marketable. They want to buy stock in a company because they want to earn more money and make a profit. They do not want to lose money, and a group of young students may be considered quite naïve (cited from interview of M9).*

To summarise, for finding investors, one second code was generated, ***'Lack of resources and the readiness of their businesses'.*** Some of the incubatees expected that the incubator would introduce potential investors to them. However, others understood their business was only in the development stage, and therefore not ready for investment.

2. Use of funding

For the use of funding, cash flow and capital are always the biggest challenges facing start-ups. They cannot expand their market if there is not enough money to support the operation. Almost all the design incubatees in Microfund experienced difficulties in managing their cash flow. Although they had a certain amount of capital, they could not sustain their businesses and had to keep finding investors for financial support.

Hiring staff is another issue requiring funding. However, Microfund did not allow incubatees to use the funding to hire staff. As a result, a start-up may not recruit staff, because of shortage of funds to pay the salary.

Living expenses are another financial burden to incubatees and these are outside of the scope of funding support. Due to this reason, some co-founders left the team, since they could not sustain their livelihood.

Lacking knowledge of financial and accounting management is another indirect factor related to use of funding. Since most of the incubatees are university students and fresh graduates,

they had not acquired this kind knowledge in their studies. A degree of self-learning was necessary but of limited use in the real business context. To compensate for their lack of knowledge, some incubatees sought advice from their friends, and others (e.g. M5 and M7) suggested that accounting assistance service could be supplied by the incubator. In this case, incubatees could focus on creativity development.

> *The funding is not enough to run my business and to support myself as a founder or incubatee … I just need to work extremely hard. There are different stages in the business. In my case, I financed myself to a large degree as I could not use the funding to pay myself a salary. But I had to pay for my accommodation and living expenses during the prototype period (cited from interview of M7).*

For the use of funding, one second code was obtained, ***'Lack of capital'.*** Some of the incubatees do not have enough cash flow and lack the necessary capital to support their living expenses or recruit staff (Figure 5.11).

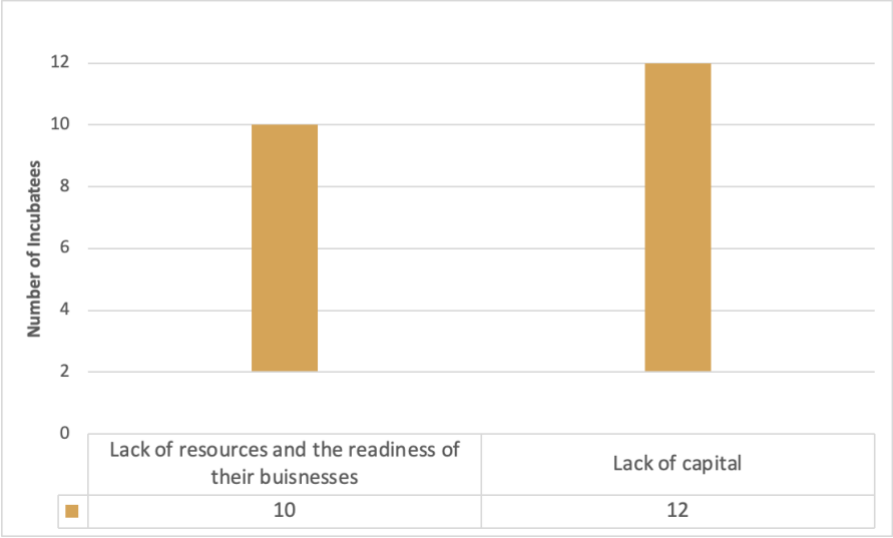


Figure 5.11 Financial support (Case B)

5.3.5 Business service support

Business service support is the fourth category of the BI process. Two first codes were identified, which were ***'Mentoring'*** and ***'Milestone assessment'.***

1. Mentoring

Microfund provides mentoring and business advice to incubatees during the pre-incubation and incubation phases. Incubatees are required to attend 20-hour compulsory seminars and are at liberty to join mentoring sessions organised by the incubator. Incubatees found that the mentoring services were of limited use to them in their business. Some of the incubatees (e.g. M2 and M3) expected to receive some advice related to their industrial areas from the mentors, not general advice.

The background of the mentor was another issue which concerned the incubatees. It was reported that the advice from young entrepreneurs was more helpful than that provided by elder mentors. Overall, incubatees appreciated the mentor service, which was viewed as much better than those by other incubators. Some mentors helped incubatees to connect with other companies or potential business partners in other countries. As a result, a number of the incubatees were given the opportunity to expand their business to oversea markets.

For mentoring, one second code was generated, which was ***'Different background of mentors'.*** The main concern about mentoring is whether the mentors understand the design business or not. If the mentor understands the operation of different design businesses, then they could give more valuable advice to the design start-ups.

2. Milestone assessment

There are three purposes of the milestone assessment in Microfund. Firstly, help incubators to evaluate their services; secondly, improve their programmes; finally evaluate and improve the abilities of the incubation manager on business planning and support. Microfund had milestone assessment meetings with incubatees three times per year. After the meeting, if the incubatees fulfilled all the assessments of the milestones, then they were able to receive part of the funding. Most incubatees agreed that the principle of receiving their funding in three instalments was acceptable. They also considered that the arrangement of milestones was fair, and that it motivated them to achieve their business goals. It was reported that the milestone assessment was easy to achieve. All the incubatees fulfilled the requirements for the assessments and were given the funding after the meetings.

In the assessment, evidence of the achievements were required. In addition to the milestone form which was to be completed by incubatees, photos of the developed products and exhibits at trade shows were also required.

To summarise, for the milestone assessment, one second code was generated, ***'Received the funding'.*** All the incubatees found that the milestone assessment was easy to achieve. After achieving the milestone assessment, they received the funding from the programme (Figure 5.12).

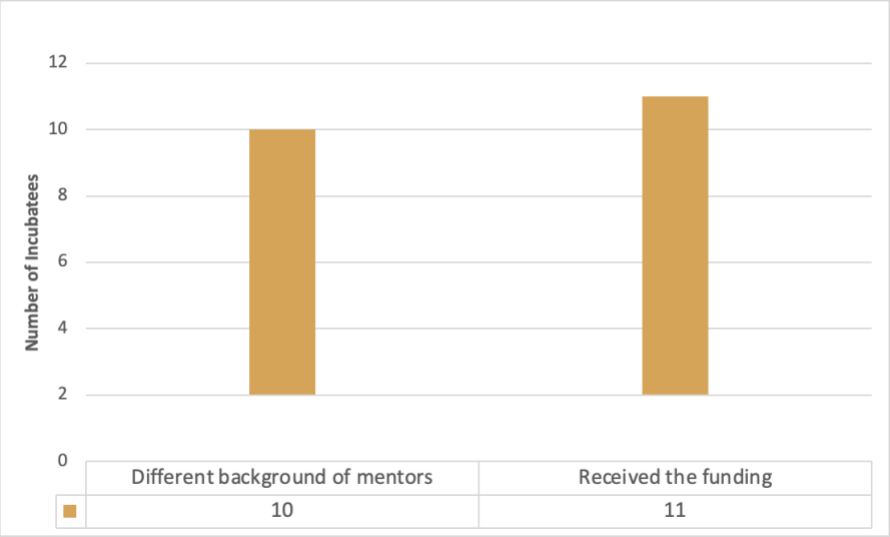


Figure 5.12 Business service support (Case B)

5.3.6 Networking

For the networking, two first codes were applied, which were 'Internal networking - among incubatees' and 'External networking – business connection'.

1. Internal networking – among incubatees

No specific internal networking activities were arranged by the incubator, apart from seminars and training sessions. The only opportunity for internal networking was the incubation centre's annual exhibition, since many incubatees attended it. Some incubatees explained the reason for lack of contact was no fixed office space for incubatees. In this case, the incubatees suggested that the incubator should provide more networking activities to enable incubatees to get acquainted with one another.

To summarise, for internal networking among incubatees, one second code was generated, which was ***'No connections with other incubatees'.*** Incubatees found that there were not many internal networking activities organised by incubators for incubatees.

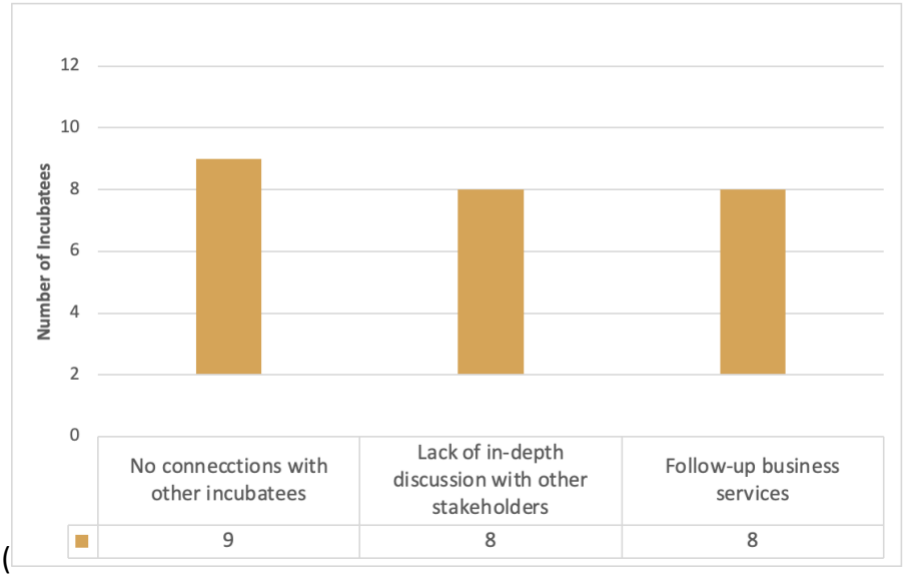
2. External networking – business connection

Microfund organised a graduate exhibition once a year to showcase incubatees' projects. For incubatees, this was a good opportunity to get more business contacts. The incubator also arranged some networking activities and public events to link incubatees with external resources. However, Some incubatees (e.g. M3 and M9) were unable to join the networking activities, because their products were not ready for displaying or launching on markets. In this case, they lacked the necessary deliverables to further communicate with potential investors.

Incubatees also suggested other types of external networking activities. Some incubatees mentioned networking events for specific design discipline. Others preferred a continuous interaction with the business network or with in-depth discussions and follow-up. In additional, incubatees were also interested in connecting with large companies to expand their businesses, improve reputation and facilitate their entrepreneurial endeavours.

To summarise, for the external networking-business connections, two second codes were obtained, ***'Lack of in-depth discussion with other stakeholders'*** and ***'Follow-up business services'.*** Incubatees expected that the incubator would introduce them to business contacts through the networking activities. The interviewees were of the opinion that these activities should not be offered on a once-off basis. Instead, they should be arranged with follow-up

and extension activities



(*Figure 5.13*).

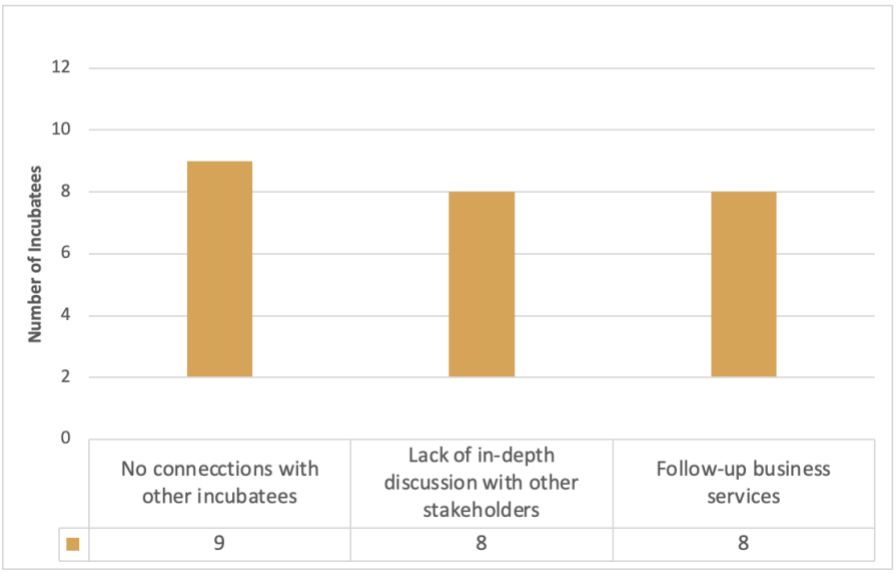


Figure 5.13 Networking (Case B)

5.3.7 Entrepreneurship training

Entrepreneurship training is the sixth category of the BI process. The university incubator aims to provide academic entrepreneurial training to students, graduates and alumni. Pre-incubation entrepreneurial training was delivered to the applicants. One first code was identified, which was ***'Business training organised by incubator'.***

Entrepreneurial training for incubatees is an essential component in the incubation programme. Incubatees varied in their opinions of entrepreneurship training. Some

incubatees thought the training was useful. They could learn start-up business and business pitching skills. Some appreciated the opportunities of networking, especially meeting other incubatees. However, the main challenge was how to apply the learnt knowledge into their projects. For the content of training, incubatees were more interested in marketing and financial management, which they didn't learn in their university education. The training fee was another factor of concern to incubatees, because of their limited budgets. Some incubatees suggested that the Microfund should offer six months' training before they started their businesses. However, they were required to finish all the basic start-up operations in the nine-month incubation period. Incubatees were able to participate in training programmes supplied by external bodies. Of those who had participated in such training, they found the content quite similar to the programmes of the Incubator. External training programmes offered tended to focus on marketing and financial management, and may have been more useful than the ones delivered by the Microfund.

In the case of the entrepreneurship training organised by incubators, two second codes were generated, ***'General training for all incubatees'*** and ***'Adjusted the content to the design businesses by themselves'.*** Design incubatees expected the incubator to offer business training specifically for the design business. However, the entrepreneurship training was for business so the incubatees had to apply the knowledge gained to their design business. They were generally aware that entrepreneurship training outside of the incubator was more helpful than that provided by the Microfund (Figure 5.14).

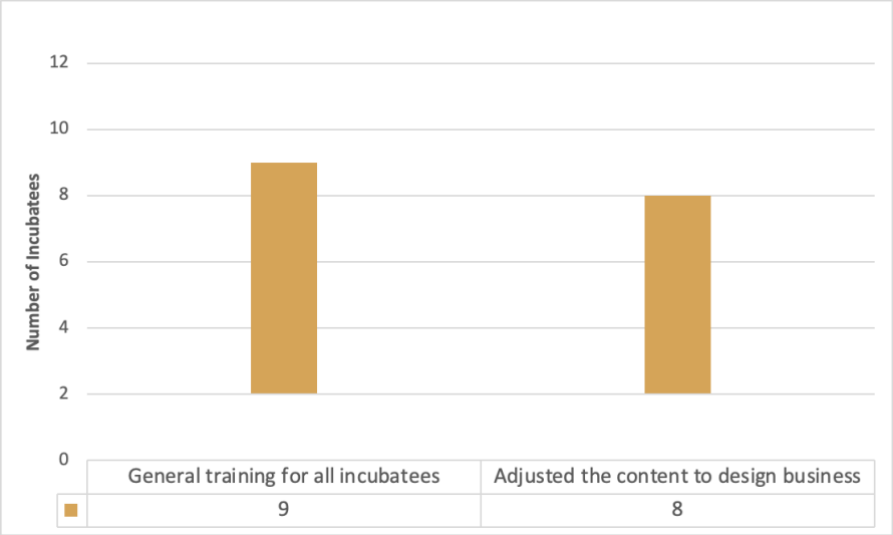


Figure 5.14 Entrepreneurship training (Case B)

5.3.8 Summary of incubatees' perspectives on BI process of Case B – Microfund

In this section, incubatees' views on Case B, the Microfund as university-based incubator were reviewed in line with the their expectations and six categories of the business incubation process. As a result, 17 second codes were discovered (Table 5.2).

Table 5.2 Second codes results of Case A- Microfund from incubatees' perspectives

Incubatees' perspectives		**First codes**	**Second codes**
		Incubatees' expectations	(1) Provide business guidance through mentorship (2) Enhancing start-ups' business knowledge (3) Funding support
BI process category		**First codes**	**Second codes**
1. Selection process and Exit policy	**Selection process**	Selection criteria	(4) Different expectations and personal development of each founder
	Exit policy	Exit policy	(5) Living expenses and funding resources
2. Infrastructure		Locations	(6) Convenient
		Facilities	(7) Cannot gain access to the university's facilities (8) Expected an individual office
3. Financial support		Finding investors	(9) Lack of resources and the readiness of their businesses
		Use of funding	(10) Lack of capital
4. Business support service		Mentoring	(11) Different background of mentors
		Milestone assessment	(12) Received the funding
5. Networking		Internal- among incubatees	(13) No connections with other incubatees
		External-business connection	(14) Lack of in-depth discussion with other stakeholders (15) Follow-up business services
6. Entrepreneurship training		Business training organised by incubator	(16) General training for all incubatees (17) Adjusted the content to the design business by themselves

For the ***incubatees' expectations*** before applying for the programme, three second codes were reported. The incubatees expected to learn business skills and get funding support to develop their business through joining this programme. Some of them may have viewed the programme as a trial stage to develop their businesses. If they could not sustain their business after graduating from this programme, then they would not continue their start-ups.

For the first categories of ***selection process*** and ***exit policy***, two second codes were discovered. The incubatees were concerned about their career paths and living expenses. Since most of the incubatees applying for this programme made their applications on the basis of their final-year projects, they were concerned about the amount of capital required to continue their business after graduation. Most of them lacked the necessary capital to continue their start-ups. Therefore, living expenses and the future career prospects were their main concerns when they applied for this programme.

For the ***infrastructure*****,** three second codes were developed. Incubatees indicated that they were unable to gain access to all of the facilities that they required in the university, and only the incubation centre was available to them. Some design incubatees needed to develop their prototypes and so they preferred the facilities in the Design School studios. However, they were unable to access these facilities. They also preferred fixed workstations in the centre so that they could stay there and also store such items as their computers in that space.

For the ***financial support***, two second codes were developed. Incubatees normally lack of the necessary capital to expand their businesses, and the incubator could not assist them in finding investors. However, incubatees also understood that their businesses might not be ready to attract potential investors.

For the ***business support service***, two second codes were reported. The main service of concern to the incubatees was mentorship. Incubatees preferred those who were able to understand their design business.

For the ***networking***, three second codes were discovered. In interviews it was reported that the incubatees had limited opportunities to get to know each other through internal networking activities. Incubatees expected that the incubator would introduce business partners or clients to them through the networking activities. Moreover, they indicated that the networking activities were short-term or one-off options, and did not facilitate long-term business relationships with follow up arrangements.

For the last categories, ***entrepreneurship training,*** two second codes were identified. Interviewees stated that the training organised by the incubator was of relevance to general business, and not specifically aimed for design business.

5.4. Summary: incubatees' perspective on BI process

In this chapter, incubatees' expectations and their perspectives regarding the six categories of business incubation process of the two cases were reported as second codes. For Case A – DIP, there were 20 second codes, while there were 17 second codes for Case B – Microfund. Table 5.3 shows the summary of incubatee's perspectives on the two cases.

Table 5.3 The second codes of incubatees' perspectives on the two cases

		First codes	Case A – DIP (Government-based)	Case B – Microfund (University-based)
			Second codes	
Incubatees' perspectives		Incubatees' expectations	(1) Financial assistance (2) Build up business network (3) Learn entrepreneurial skills	(1) Provide business guidance through mentorship (2) Enhancing start-ups' business knowledge (3) Funding support
BI process category		**First codes**	**Second codes**	
1. Selection process and Exit policy	**Selection process**	Selection criteria	(4) Lack of full-time partners	(4) Different expectations and personal development of each founder
	Exit policy	Exit policy	(5) Longer incubation period (6) Longer follow-up business services	(5) Living expenses and funding resources
2. Infrastructure		Locations	(7) Close to suppliers and living space	(6) Convenient
		Facilities	(8) Workshop with the necessary equipment (9) The functionality of an office space	(7) Cannot gain access to the university's facilities (8) Expected an individual office
3. Financial support		Finding investors	(10) Difficult to find related investors	(9) Lack of resources and the readiness of their businesses
		Use of funding	(11) Not enough cash flow (12) The flexibility of using the funding	(10) Lack of capital
4. Business support service		Mentoring	(13) Mentors are not familiar with design business (14) Long-term mentors	(11) Different background of mentors
		Milestone assessment	(15) The milestones were under their control	(12) Received the funding
5. Networking		Internal-among incubatees	(16) Compulsory and voluntary based networking	(13) No connections with other incubatees
		External-business connection	(17) Different needs of each design business (18) Connect with other stakeholders	(14) Lack of in-depth discussion with other stakeholders (15) Follow-up business service
6. Entrepreneurship training		Business training organised by incubator	(19) Design-related business sharing and learning (20) Learnt from experience by themselves	(16) General training for all incubatees (17) Adjusted the content to the design business by themselves

Firstly, the ***incubatees' expectations*** before applying for the programmes of each of the cases were discussed. Six second codes were generated from the two cases. It was found that incubatees in both cases shared similar opinions in three areas, these being funding assistance,

network resources and entrepreneurial skills. They were all concerned about the funding assistance supplied by the incubators to build up and develop their start-ups. Secondly, they appreciated business guidance to enhance their entrepreneurial skills. Thirdly, incubatees expected to build up an external network through the incubation programmes to enhance their resources network, approach clients and get orders.

In the category of the ***selection process*** and ***exit policy***, five second codes were found in both cases. For the selection process, incubatees of the DIP were concerned about the requirement to have two full-time staff, which they considered to be difficult to fulfil. In Case B, Microfund, the expectations of the incubatees varied, from funding, and living expenses to further development. For the exit policy, Case A incubatees wanted the incubators to provide a long-term incubation period and follow up their business, since they lacked start-up experience. In Case B, incubatees were concerned about their career prospects and living expenses, rather than whether their start-up was sustainable or not.

In the category of the ***infrastructure,*** six second codes were found in both cases. Two are related to location and four are about facilities. For location, incubatees of Case A preferred the location of the incubation centre to be close to the suppliers, while incubatees of Case B thought the location was convenient. However, they didn't use it frequently, due to its limited facilities. For facilities, incubatees of Case A suggested the incubator should provide specific equipment or design workshops for design. For Case B, there were only co-working spaces in the centre and incubatees were unable to use most of the facilities in the university.

In the category of ***financial support***, five second codes were found in both cases. Two are in the first code of finding investor, and three for use of funding. Concerning finding investors, incubatees of Case A could not find investors to invest in their start-ups. In Case B, their business was not ready to be introduced to the investors. For use of funding, incubatees of the two cases all lacked cash flow and capital. Although they received funding from the programme, they found that it was not flexible to use the fund.

In the category of ***business support service***, five second codes were found. Three were for mentoring and two were for milestone assessment. For mentoring, Incubatees in both cases were concerned that the mentors were unfamiliar with the design business. For Case A, the

mentorship service was limited by time yet they expected the mentors to assist them for the whole incubation period. For milestone assessment, both programmes allowed the incubatees to set up the milestones, and the corresponding assessment was linked to the receipt of funding.

In the category of ***networking***, six second codes were found in both cases. Two were for internal network among incubatees, and four were related to external network for business connections. For the internal networking, incubatees of Case A preferred the networking to be voluntary based, because they met other incubatees at the centre every day. Therefore, internal networking among incubatees was not necessary. For Case B, incubators did not organise any internal networking among incubatees. As a result, they did not have chances to connect with other incubatees. For the external networking, in both cases the incubatees expected the incubators to assist them to connect with external stakeholders. Case B incubatees expected the incubator to have follow-up contact with the stakeholders. Case A's incubatees expected these activities should be designed for the specific needs of the different disciplines, such as product design, fashion design, and communication design, since they vary in terms of their business models.

In the last category of ***entrepreneurship training***, four second codes were found in the two cases. Incubatees of the two cases expected that the training should be specific for the design business, instead of general for business training. They also indicated that the trainers were unfamiliar with the design business. Therefore, some of the incubatees in Case A learnt entrepreneurship skills by themselves.

CHAPTER 6. CHARACTERISTICS OF BI PROCESS FOR DESIGN START-UPS AND INCUBATEES' PERSPECTIVES

CONTENT

6.1. Introduction

In this chapter, the perspectives of incubatees and the characteristics of BI process for design start-ups are discussed based on the obtained results of second code in Chapters Four and Five from the two cases, DIP and Microfund. In the first section, the new perspective from incubatees on BI process based on the six categories is reported through comparing to the reported first code from the literature review, which is mainly from the incubator's perspective. The findings were classified into three groups: 1) new element, 2) new content, and 3) the same content. New elements are the new code results, which were not mentioned in previous studies according to the first code of literature review. This might be the new element to understand the BI process, besides the exiting elements for the six categories. New content refers to the explored description of the existing first code from the literature review. It enriched the understanding of the existing BI process. Same content refers to the similar findings from the earlier literature review. As a result, two new elements, 16 new content and two same contents were reported.

The second section, the new content of BI process for design start-ups, reports the comparison between the results of the second code from the incubator's perspectives of design start-ups and the first code from the literature review, which focused on non-design start-ups. As a result, one new element, 6 new content and 16 same contents were reported.

6.2. New perspectives from incubatees on BI process

In the literature review given in Chapter Two, it was reported that existing theories about the BI process were mainly from the perspective of the incubator, instead of incubatees. In this case, understanding the BI process from incubatees' perspective was defined as one research question 2. To obtain its answer, the second code results from incubatees' perspectives in the two cases were synthesized and further compared to the results of the first code from the literature review. As a result, a total of 31 second codes from the incubatees' perspectives were obtained. Of these, 17 items were reported from Case A - DIP, while 14 were from Case B - Microfund (Table 6.1).

Table 6.1 New perspectives from incubatees on BI process based on the six categories

BI process Categories	Incubatees' perspectives (Second codes)		Literature Review (LR)	Discussion and reported findings
	Case A	Case B	Incubators' perspectives	
1. Selection process and exit policy	(1) Lack of full-time partners	N/A	Selection criteria	new content
	(2) Longer incubation period	(1) Living expenses and funding resources	Exit policy	New content
	(3) Longer follow-up business services			New content
	N/A	(2) Different expectations and personal development of each founder	No discussion	New element
2. Infrastructure	(4) Close to suppliers and living space	(3) Convenient	Location	Same as LR
	(5) Workshop with the necessary equipment	(4) Cannot gain access to the university's facilities	Facilities	New content
	(6) The functionality of an office space	(5) Expected an individual office		New content
3. Financial support	(7) Difficult to find related investors	(6) Lack of resources and the readiness of their businesses	Finding investors	New content
	(8) Not enough cash flow	(7) Lack of capital	Use of funding	New content
	(9) The flexibility of using the funding			New content
4. Business support service	(10) Mentors are not familiar with design business	(8) Different backgrounds of mentors	Mentoring	New content
	(11) Long-term mentors			
	(12) The milestones were under their control	(9) Received the funding	Milestone assessment	New content
5. Networking	(13) Compulsory and voluntary based networking	(10) No connections with other incubatees	Internal networking	New content
	(14) Connect with other stakeholders	(11) Lack of in-depth discussion with other stakeholders	External networking	New content
		(12) Follow-up business service		New content
	(15) Different needs of each design business	N/A	No discussion	New element
6. Entrepreneurship training	(16) Design-related business sharing and learning	N/A	Business training organised by incubator	New content
	(17) Learnt from experience by themselves			New content
	N/A	(13) General training for all incubatees		same as LR
	N/A	(14) Adjusted the content to the design business by themselves		New content

In the comparison, the 31 second codes were analyzed according to the frame of first code. The results of the comparison were reported in three groups according to the different relationships between the content from incubatee and incubator, in two perspectives. The three groups are: 1) two new elements, which were not in the scope of the first code from the incubator perspective; 2) 16 new contents of first code of existing incubators' perspectives; and, 3) two same contents of first code from the incubators' perspectives. The details of the results and findings are reported in below.

6.2.1 The first group: new elements from the incubatees' perspective

The Incubatees' perspective contributed to two totally new elements and they were not in the scope of first code. The first element was '***Different expectations and personal development of each founder'*** in the selection process and exit policy category. It is shown that most of the incubatees had different expectations and future plans for their career development. Therefore, their expectations and personal development were different. This element was not within the six categories resulting from the literature review.

The second element was ***'Different needs of each design business'*** in the networking category. Incubatees expected the incubator to organize networking activities related to the design industries to help them to find clients or other stakeholders, such as suppliers. However, they were of the opinion that the incubator did not understand their design business. This was also outside of the discussion which resulted in the identification of the six categories derived from the previous studies. The two elements indicate the distinctive content of both the selection process and exit policy and networking from the incubatees' perspective, compared to the incubator's perspective.

6.2.2 The second group: new contents

This is the main group of elements derived from the incubatee's perspective through comparison with the content of first code from the incubator's perspective. Of the reported 31 second codes derived from the incubatees' perspectives, there are a total of 26 second codes contributing to 16 new contents in this group.

There are three new contents items in the selection process and exit policy with three second codes: ***'Longer incubation period'***, '***Longer follow-up business services'*** and ***'Living expenses***

and funding resources' in the exit policy. It shows that incubatees expected the incubator to provide a longer incubation period and follow-up business services for incubatees to consolidate their businesses. They were also concerned about their living expenses and funding resources.

There is one new content reported with one first code of relevance from the literature review in the selection criteria is: ***'Lack of full-time partners'***. No discussion of the scope of incubatees' perspectives was found in the literature review. Incubatees were concerned as to whether they had enough full-time business partners to meet the incubation application requirement.

In the category of infrastructure, two new contents items were found within the four second codes: ***'Workshop with the necessary design equipment'***, '***Cannot gain access to the university's facilities'***, ***'The functionality of an office space'***, and ***'Expected an individual office'***. This shows that, comparing with standard facilities supplied by incubators, incubatees were mainly concerned about the specific facilities due to their business nature. Although they understood that the incubators may not have prepared specific facilities or an individual office for a particular start-up, a suggestion about linking to external facilities was proposed as the solution.

The third category, that being financial support, had three types of new contents items which were reported by means of reference to the five second codes: ***'Difficult to find related investors'***, ***'Lack of resources and the readiness of their businesses'***, ***'Not enough cash flow'***, ***The flexibility of using the funding' and 'Lack of capital'.*** Since the start-ups are in their early business stage, they lack resources and capital. In this case, incubatees expected the incubator help them to find investors who were interested in design industry. In addition to this, they preferred a flexibility strategy when it came to the use of the fund set up by the incubators.

The fourth category is business support service. Two new contents items were contributed to the five second codes. Three were related to mentors. These were ***'Mentors are not familiar with design business'***, ***'Different background of mentors'***, and ***'Long term mentors'***. The first new content from the incubatees' perspectives focused on the mentors' knowledge of design

start-ups, rather than general business. Added to this, a long-term mentoring service was suggested as being more effective in terms of support. The second new content with two second codes were of relevance to the milestone assessment. They included ***'The milestones were under their control'*** and ***'Received the funding'***. Incubatees appreciated the arrangement whereby they could determine the milestone assessment by themselves. As a result, they were easy to achieve and the incubatees could receive the funding.

In the fifth category of the networking, five second codes led to three new contents items. The first new content item with two second codes were for internal networking: ***'Compulsory and voluntary based networking'*** and '***No connections with other incubatees'***. Incubatees were dissatisfied with the internal networking activities arranged by the incubators. They viewed these as being unnecessary, and no effective network was the result. The other two new content with three second codes were about external networking, these being, ***'Connect with other stakeholders'***, ***'Lack of in-depth discussion with other stakeholders'*** and ***'Follow-up business service'***. Incubatees expected to approach external stakeholders and establish long-term relationships with them to support their business development.

The sixth category is entrepreneurship training, and three second codes contribute to three new contents items. The three second codes are: ***'Design-related business sharing and learning'***, ***'Learnt from experience by themselves'*** and ***'Adjusted the content to the design business by themselves'***. Incubatees expected that the entrepreneurship training would be tailor-made for their design business, and they thought they could learn about business by sharing experience with other design incubatees or start-ups. However, the training organized by the incubator was not related to the design business. As a result, incubatees have to adapt the content in order to apply it to their business.

The new contents items reported from the incubatees' perspectives resulted in new description of the six categories of BI process, when compared to the incubator's perspectives. It provides comprehensive views on both incubator's perspectives and incubatees' perspectives on the BI process.

6.2.3 The third group: same content (same as literature review)

Two same contents with three second codes were reported from incubatees' perspectives, which were the same as those from incubator's perspectives. They contribute to the two first codes from the literature review: ***'Location'*** in the infrastructure category and ***'Business training organized by incubator'*** in the entrepreneurship training category. For the location, two second codes of the same contents were discovered, these being ***'Close to suppliers and living space'*** and ***'Convenient'***. The main concern was that the location of the incubation centre should be close to their suppliers, living space and business partners. This reported result is the same as that found from the literature review of the infrastructure.

For the entrepreneurship training category, one second code of ***'General training for all incubatees'*** is in line with the content of the literature review. This implies that both incubatees and incubators viewed the general training for incubatees to be an important factor in the incubation programme.

To summaries, the reported new elements of the categories, which were not included in subjects raised by incubators. The new contents of the six categories of BI process from the incubatees' perspectives enriched the understanding of each category. In cases where the same content was reported by both incubators and incubatees, these are shown they have same views on some of the items of BI process.

6.3. New contents of BI process for design start-up

The specific considerations for design start-ups in the BI process have been defined in this study. Accordingly, the results of the second codes of Case A and B from the incubator's perspective were compared with first code derived from the literature review. Since both were from the incubator's perspectives, and previous studies focused on non-design start-ups, the distinctive elements of design start-ups are shown as the result of the comparison. A total of 26 elements were reported from two cases as the result of the second codes from incubator's perspectives. It was found that there was no significant difference between design and non-design start-ups for the six categories of BI process, since most of the elements reported as second codes were same as first code results from the literature review. Of the

26 elements, 7 were specific for design start-ups. The results of the comparison were reported in three groups: 1) new elements, 2) new content, and 3) same content. (Table 6.2)

Table 6.2 New content of BI process for design start-ups

BI process categories	Description	Non-design start-up	Design Start-up	
		Main elements from literature review	**Second codes of Case A and B- Incubators' perspectives**	**Discussion and reported findings**
1. Selection process and exit policy	Concise programme information and procedure with clear policies	Selection criteria	(1) Combinations of different partners	Same as Literature Review (LR)
			(2) Difficulties of business model	New element
		Exit policy	(3) Amount of the government funding	same as LR
			(4) Increased revenue and staff, and a follow-up survey	same as LR
			(5) Apply other funding to continue and scale-up	same as LR
2. Infrastructure	The location should be convenient and easy to access	Location	(6) Close to other design companies	new content
			(7) Convenient	same as LR
		Facilities	(8) Necessary standard equipment for office	same as LR
			(9) Provided different spaces based on incubatees' needs	same as LR
			(10) Collaborated with other government organisation	same as LR
			(11) Provide co-working space	same as LR
3. Financial support	The provision of financing	Finding investors	(12) The role of incubator	same as LR
			(13) No investor services provided	new content
		Use of funding	(14) Limited resources	same as LR
			(15) Based on incubatees' milestone assessment	new content
4. Business service support	Quality of incubator management, including staff	Mentoring	(16) Gain different perspectives from mentors	same as LR
			(17) Depends on the entrepreneurs' attitude	same as LR
			(18) Give business advice	same as LR
		Milestone assessment	(19) Incubator's advice only for incubatees' reference	new content
			(20) Business development assessed in three stages	new content

Table 6.2(continued)

BI process categories	Description	Non-design start-up	Design Start-up	
		Main elements from literature review	**Second codes of Case A and B- Incubators' perspectives**	**Discussion and reported findings**
5. Networking	Provide good internal and external networks and contact resources to incubatees	Internal networking	(21) Train incubatees' pitching skills	same as LR
			(22) Through training programmes and exhibitions	same as LR
		External networking	(23) Opportunities for exposure to get business orders	same as LR
			(24) Provide networking activities for all disciplines in voluntary based	new content
6.Entrepreneurship training	Sufficient to provide appropriate entrepreneurship and business skills to incubatees	Business training organised by incubator	(25) Train incubatees to become successful entrepreneurs	same as LR
			(26) Pre-incubation training	same as LR

6.3.1 The first group: new element

Of the 26 results of second codes, only one was reported as a new element. It contributed to the selection criteria in the category of selection process and exit policy. This second code was '***Difficulties of business model'***. Due to the nature of business, the Incubator considers that design incubatees' business models should be different from those in other industry sectors. This new element represents the importance of identifying the distinctive characteristics of the business model for a design start-up.

6.3.2 The second group: new contents

Five new contents contributed to five second codes. These extended the scope and content of six categories, as well as articulating the consideration for design start-ups in a BI process.

The first new content was in the category of infrastructure with a special concern on location: ***'Close to other design companies***'. This was explained by the fact that these design start-ups preferred to connect with other design companies for business collaboration purposes.

The 2nd and 3rd new contents were in the category of financial support. They contributed to two second codes from 'Finding investors' and 'Use of funding'. For the 'Finding investors', ***'No investors service provided'*** was reported as the 2nd new content. The Incubator did not provide an investor matching service to the incubatees. They expected incubatees to find investors by themselves. However, design start-ups understandably emphasized the importance of investor interest, since there is a limited number of investors who are interested in design start-ups. For the 'Use of funding', ***'Based on incubatees' milestone assessment'***, was reported as the 3rd new content explored from the viewpoint of the design start-ups. The Incubator expected incubatees to manage their living expenses and the incubator did not provide any funding for incubatees' daily needs. The purpose of the funding is mainly for incubatees' business development, not for incubatees' living expenses. This shows that, unlike non-design start-ups, design start-ups suffer more serious challenges to find investors and fund their living expenses.

The 4th and 5th new contents were in the category of business service support. They contributed to two second codes in the milestone assessment. ***'Incubators' advice only for incubatees' reference'*** and ***'Business development assessed in three stages'*** were the two

new contents. The Incubator expected their advice to incubatees to be only for their reference. They evaluated the incubatees' businesses with reference to three stages as milestones to guide their business growth. This implied that design start-ups need more business development guidance on the part of the incubators when compared to non-design start-ups.

The last new content was in the category of networking. It contributed to one second code of external networking. The new content was ***'Provide networking activities for all disciplines in voluntary based'***. Since design disciplines are diverse, incubator arranged the networking activities with a flexible strategy. Incubatees join the activities based on their availability and interest in the professional areas.

To summaries, these six new contents represent the special requirements of the design start-up, which are distinctive from non-design start-ups and were not addressed in the previous studies.

6.3.3 The third group: same content (Same as literature review)

A total of 19 contents were reported from the two cases with the same content of the six categories which were derived from the literature review. These contents contributed to ten first codes.

The first four contents were in the category of selection process and exit policy. These contents are described as ***'Combinations of different partners'*** in selection criteria and three second codes in the exit policy, ***'Amount of the government funding'***, '***Increased revenue and staff, and a follow-up survey'*** and ***'Apply for other funding to continue and scale-up'***. The Incubator expected incubatees to set up their businesses with different business partners, and this was an entry requirement related to pre-incubation activities. This requirement was also referred to in the literature review. With reference to the exit policy, the incubator used their funding based on their resources, and they expected that the incubatees would increase their revenue and staff, and then consolidate their business after incubation.

The 5th to 9th contents are in the category of infrastructure. They contributed to five second codes. One second code was that of the location: ***'Convenient'***. The other four second codes

related to facilities, including **'Necessary standard equipment for office'**, ***'Provided different spaces based on incubatees' needs'***, ***'Collaborated with other government organizations'***, and ***'Provided co-working space'***. All of the contents were discussed in the literature review. The incubator has responsibility to provide necessary standard equipment and working space to incubatees. This is one of the standard resources provided from the incubators.

The 10th and 11th content were in the category of financial support. They contributed to two second codes. The content of ***'The role of incubator'*** was related to finding investors, while '***Limited resources'*** was about use of funding. These are same as the description in the literature review. The role of an incubation manager is to provide necessary business advice to the incubatees. The use of incubation funding was also referred to in the previous studies and it was indicated that the funding was based on the incubator's resources and the background of the incubator.

The 12th to 14th contents were in the category of business service support. They contributed to three second codes in the mentoring: '***Gain different perspectives from mentors'***, '***Depends on the entrepreneur's attitude'*** and ***'Give business advice'***. In the literature review, it was indicated that the incubators provide mentoring services with different mentors, and that the incubatees could gain business advice from the mentors.

The 15th to 17th contents were in the category of networking and contributed to two second codes in the internal networking: ***'Train incubatees' pitching skills'*** and ***'Through training programmes and exhibitions'***. ***'Opportunities for exposure to get business order'*** describes the external networking. The Incubator provided internal and external networking activities for incubatees to gain exposure to the public and train incubatees to develop their pitching skills through these networking activities.

The last two contents were in the category of entrepreneurship training and contributed to two second codes in the first code of business training organized by the incubator. They were ***'Train incubatees to become successful entrepreneurs'*** and ***'Pre-incubation training'***. These contents aligned with ideas found in earlier studies, which indicated that the incubator trained the incubatees to become successful entrepreneurs and they provided pre-incubation training for incubatees to learn business. These contents represent the same requirements

for design start-ups, which show no difference from non-design start-ups, according to the literature review.

To summaries, through comparing the results of second codes from two cases with the first codes results derived from the literature review, it is shown that the majority of the descriptions of the six categories are the same. However, there are also some newly reported contents, which supply new elements in the frame consisting of categories and the first codes of the categories. There is a new element, which is not in the scope of the first codes from the literature review. The new element, and related new content, represents the special concerns of relevance to design start-ups, as contrasted with non-design start-ups.

CHAPTER 7. THEMES OF BUSINESS INCUBATION PROCESS – AN INTEGRATION OF INCUBATOR AND INCUBATEE'S PERSPECTIVES

CONTENT

7.1. Introduction

In this chapter, the main results of the two case studies are further discussed and the findings are verified through expert interviews. For the discussion section, the themes of the business incubation process are reported based on within-case analysis and cross-case analysis of the obtained second codes in Chapters 4 and 5. The results of the analysis are introduced in three sections. In this first section, the within-case analysis was applied to synthesize the second codes from incubators' and incubatees' perspectives. This provides the new insights into the business incubation process for design start-ups, which answers the sub-question three (SQ3): What are the key elements of the business incubation process for design start-ups? In the second section, the first themes of the two cases were further discussed with the first code result to identify the final themes. The final themes ae reported as the results of the cross-case analysis. The 14 final themes of the BI process for design start-ups were then discovered and presented. In the third section, a theoretical framework of the BI process for design start-up was presented as the revision of initial framework proposed in Chapter Two to visualize the final themes in a BI process. Finally, the main findings of this research were validated via expert interviews. The results of the validation not only support our research findings, but also indicate certain potential research areas for future studies. This is reported in Section 7.5.

7.2. First themes of BI process from within-case analysis

7.2.1 Case study A – Design Incubation Programme (DIP)

This section discusses the findings of business incubators and incubatees' perspectives in Case study A, which used within-case analysis to compare differences between their expectations and perspectives concerning the six categories of the incubation process. The results were that 12 first themes were discovered within incubators' objectives and incubatees' expectations before applying for the programme and the six categories of BI process (Table 7.1). The comparison of incubators and incubatees provides new insights into the business incubation process for design start-ups. In the following section, the newly reported 12 first themes are discussed in line with the six categories of

Table 7.1 Summary of all the codes and first themes of incubators' and incubatees' perspectives in BI process in Case A – DIP

BI process		First code	Incubators' perspectives	Incubatees' perspectives	First themes
			Second code		
Expectations		Incubators' objectives	(1) Become a successful entrepreneur in business (2) Sustainable business	N/A	A(1) Clear programme objectives
		Incubatees' expectations	N/A	(1) Financial assistance (2) Build up business network (3) Learn entrepreneurial skills	
1. Selection process and exit policy	**Selection process**	Selection criteria	(3) Combinations of different partners	(4) Lack of full-time partners	A(2) Incubatees' business development A(3) Set up a design start-ups community
	Exit policy	Exit policy	(4) Amount of the government funding (5) Increased revenue and staff, and a follow-up survey	(5) Longer incubation period (6) Longer follow-up business services	
2. Infrastructure		Locations	(6) Close to other design companies	(7) Close to suppliers and living space	A(4) Convenient A(5) Flexibility of the office usage
		Facilities	(7) Necessary standard equipment for office (8) Provided different spaces based on incubatees' needs	(8) Workshop with the necessary equipment (9) The functionality of an office space	
3. Financial support		Finding investors	(9) The role of incubator	(10) Difficult to find related investors	A(6) Readiness to find investors A(7) Cash flow and business plan development
		Use of funding	(10) Limited resources	(11) Not enough cash flow (12) The flexibility of using the funding	
4. Business support service		Mentoring	(11) Gain different perspectives from mentors (12) Depends on the entrepreneurs' attitude	(13) Mentors are not familiar with design business (14) Long-term mentors	A(8) A design start-up community with long-term mentors A(9) The function of milestone assessment
		Milestone assessment	(13) Incubator's advice only for incubatees' reference	(15) The milestones were under their control	
5. Networking		Internal – among incubatees	(14) Train incubatees' pitching skills	(16) Compulsory and voluntary based	A(10) The function of internal networking A(11) Set up a design start-ups community
		External – business connection	(15) Opportunities for exposure to get business orders	(17) Different needs of each design business (18) Connect with other stakeholders	
6. Entrepreneurship training		Business training organised by incubator	(16) Train incubatees to become successful entrepreneurs	(19) Design-related business sharing and learning (20) Learnt from experience by themselves	A(12) Customized training for design start-ups

1. Incubators' objectives and incubatees' expectations of the programme

The difference between incubator's objectives and the incubatees' expectations are shown with reference to the results of incubation and programme effectiveness. In the first instance, the DIP considered that success was dependent upon the entrepreneurs' personalities; however, incubatees assumed that the incubation management could help them to develop their businesses through their services and support. In the second, the DIP evaluated their programme effectiveness on the basis of quantitative criteria, such as incubatees' survival rate, graduation rate, sales revenue, the number of staff and jobs. However, from the perspective of incubatees, their experiences of the incubators' services and support seldom included evaluation. To summarize the incubators' objectives and the incubatees' expectations about the programme, one theme was identified: ***'Clear programme objectives'.***

2. Selection process – selection criteria and exit policy

To summarize the two different expectations on selection process, a first theme was identified, which was ***'Incubatees' business development'***. The DIP considered that the formation of a start-up was important, since it was related to business development of the different business operations in a company.

Four different expectations on exit policy were reported from the two cases. On the basis of these, a first theme was identified, that being ***'Set up a design start-ups community'***. Incubatees expected that the incubators would provide after-incubation services or information for them to sustain their businesses; however, the incubators did not provide this service to them.

3. Infrastructure

For the category of infrastructure, the comparison of the two perspectives resulted in two first codes, which contributed to six second codes in two sub-sections, location and facilities. Finally, two first themes were explored. The first theme of location reported as a key element of infrastructure was, ***'Convenient'***. The incubators expected the location to be close to design sectors. However, the incubatees expected the location to be close to their clients and suppliers. Therefore, the first theme of "Convenient" is the suggestion to assist incubatees to get the necessary resources from different stakeholders.

The second was ***'Flexibility of the office usage'***. The incubator offered incubatees a fixed working space to meet incubatees' business needs. However, incubatees expected that they would have the flexibility to use the office space, as some of them did not need any office space because of their business nature and they preferred a flexible working space for their business operation.

4. Financial support

For the category of financial support, two first themes were identified based on a total of five second codes in two sub-sections, these being 'Finding investors' and 'Use of funding'.

In the first instance, one theme was identified, and this was ***'Readiness to find investors'***. It is the primary concern of both incubators and incubatees when finding investors. Incubators expected the incubatees to make connections with investors; however, in effect the incubatees' business models and their lack of business readiness precluded this.

In reference to the use of funding, the DIP was concerned about resources, while the incubatees were concerned about their cash flow. One first theme on the subject of the use the funding was reported, and that was ***'Cash flow and business plan development'***. Incubators expected incubatees to be able to manage their finances and all the accounting matters by themselves. However, most of the design incubatees lacked knowledge of financial management, even though they asked mentors for guidance and attended classes provided by the incubator.

5. Business support services

The comparison of the two perspectives resulted into two first codes, which contributed to seven second codes in two sub-sections, mentoring and milestone assessment. Finally, two first themes are reported according to the two sub-sections. Concerning mentoring, the different opinions from incubators and incubatees were divided into three parts, which were mentor, duration of mentorship, and related resources. Accordingly ***'A design start-up community with long-term mentors'*** was reported as the first theme. Incubators expected the incubatees to make use of this time-limited mentorship service as well as strive to obtain business advice from different sources. However, incubatees expected long-term mentors who come from the design business field to give them business advice.

In the case of the milestone assessment, the concerns of incubators and the feedback of incubatees were different. ***'The function of milestone assessment'*** is reported as the first theme of milestone assessment. Incubators expected that the incubation management would provide business advice only for incubatees' reference. However, incubatees expected the incubation management to assist them in achieving their goals in order to receive funding and the milestones were under their control. Therefore, the role of the incubator in the milestone assessment criteria is the first theme of the milestone assessment.

6. Networking

The comparison of the two perspectives resulted in two first codes, which contributed to five second codes in two sub-sections, these being internal and external networking. Finally, two first themes are reported. ***'The function of internal networking'*** is the first of these and is reported based on the codes of internal network among incubatees. The DIP expected that incubatees would connect with other incubatees in the course of their compulsory activities and thereby gain collaborative relationships. However, the incubatees considered these internal compulsory activities to be unnecessary. ***'Set up a design start-ups community'*** was the first of the themes that emerged in the sub-section of external networking. DIP expected the incubatees to improve their communication and pitching skills during the networking sessions, but incubatees were more concerned about whether they would find potential clients through the incubation director.

Incubators expected design incubatees to gain business connections through their networking activities. However, the incubatees found that these networking activities were not related to the nature of their business and they thought that the incubators would connect them with different stakeholders, such as manufacturers, suppliers and designers within the design industry.

7. Entrepreneurship training

The comparison of the two perspectives resulted in one first code, which contributed to three second codes, respectively. One first theme was explored, that being ***'Customised training for design start-ups'***. Incubators expected that incubatees had already learnt entrepreneurial skills and how to be successful business owners after attending their training. However,

incubatees expected that the training which incubators offered should relate to design start-ups and specifically to design business. The incubator considered that the entrepreneurship training could help incubatees to learn business, pitching skills and get business opportunities to ensure exposure to the public. However, incubatees learnt business skills from other incubatees, and they thought that the incubators should invite trainers who were familiar with design business.

7.2.2 Case study B – Incubator of Microfund

In this section, 12 first themes are reported through synthesizing the second codes of business incubators and incubatees' perspectives in Case study B as within-case analysis. Table 7.2 shows the second codes and obtained first-themes in detail.

Table 7.2 Summary of all the codes and first themes of incubators and incubatees' perspectives in BI process in Case B – Microfund

BI process		First code	Incubators' perspectives	Incubatees' perspectives	First themes
			Second codes		
Expectations		Incubators' objectives	(1) Success in commercial start-ups projects (2) Business in social impact	N/A	B (1) Clear programme objectives B (2) Lack of research on business incubation for design start-ups
		Incubatees' expectations	N/A	(1) Provide business guidance through mentorship (2) Enhancing start-ups' business knowledge (3) Funding support	
1. Selection process and exit policy	**Selection process**	Selection criteria	(3) Difficulties of business model	(4) Different expectations and personal development of each founder	B (3) Clear programme objectives
	Exit policy	Exit policy	(4) Apply other funding to continue and scale-up	(5) Living expenses and funding resources	
2. Infrastructure		Locations	(5) Convenient	(6) Convenient	B (4) Convenient B (5) Flexibility of the facilities usage
		Facilities	(6) Collaborated with other government organisation (7) Provide co-working space	(7) Cannot access to the university's facilities (8) Expected an individual office	
3. Financial support		Finding investors	(8) No investors services provided	(9) Lack of resources and the readiness of their businesses	B (6) The readiness of incubatees' business B (7) Sufficient of funding
		Use of funding	(9) Based on incubatees' milestone assessments	(10) Lack of capital	
4. Business support service		Mentoring	(10) Give business advice	(11) Different background of mentors	B (8) Different background of mentors B (9) The function of milestone assessment
		Milestone assessment	(11) Business development assessed in three stages	(12) Received the funding	

Table 7.2 (continued)

BI process	First code	Incubators' perspectives	Incubatees' perspectives	First themes
		Second codes		
5. Networking	Internal – among incubatees	(12) Through training programmes and exhibition	(13) No connections with other incubatees	B (10) Determined by incubatees' characteristics B (11) Long-term connections with business stakeholders
	External – business connection	(13) Provide networking activities for all disciplines in voluntary based	(14) Lack of in-depth discussion with other stakeholders (15) Follow-up business service	
6. Entrepreneurship training	Business training organised by incubator	(14) Pre-incubation training	(16) General training for all incubatees	B (14) Customised training for design start-ups

1. Incubators' objectives and incubatees' expectations of the programme

The three first themes were obtained through comparing a total five second codes from two sub-sections, incubator's objectives and incubatees' expectations. The results, ***'Clear programme objectives'*** and ***'Lack of research on business incubation for design start-ups'*** were summarised as first themes of incubators' objectives. Incubators expected incubatees' success in commercial start-up projects. However, incubatees were of the opinion that the incubators would provide business guidance through mentorship. Incubators expected incubatees to scale up their businesses after joining different incubation programmes. However, incubatees found this difficult and had different expectations based on their life planning. In effect it was apparent that the incubators lacked the knowledge of how business incubation could be applied in the case of design start-ups.

2. Selection process and exit policy

Four second codes were found in this category of Case B, two from selection criteria and two from exit policy. ***'Clear programme objectives'*** was the first theme of the selection criteria. Incubators expected incubatees to have pre-incubation training on the subject of business planning. However, the incubatees thought that the business plan was not necessary. The incubator was concerned whether incubatees' business plans were viable or not. However, incubatees had different expectations of both incubation and personal development. ***'Clear programme objectives***' was the first theme of exit policy, which was also the first theme of selection criteria. Incubators expected that the incubatees would learn business knowledge from the pre-incubation programme and they provided a list of the funding resources for incubatees to apply for other funding after they graduated. However, incubatees did not expect the business plan to be important and they were concerned about both their living expenses and funding after graduating. Therefore, clear programme objectives are suggested in this element.

3. Infrastructure

In relation to the category of infrastructure, six second codes were found in two sub-sections, these being location and facilities. Two first themes are reported as a result of synthesis. The first theme in the sub-section of location was ***'Convenient'***. Both incubators and incubatees expected the location to be convenient and located in the central part of the city. Therefore,

convenient was the first theme in this element. Another first theme in the sub-section of facilities was defined as ***'Flexibility of the facilities usage'.*** Incubatees expected they could access and use the equipment at the university. However, the incubators did not have enough resources to provide the necessary equipment for the incubatees. They collaborated with other government organisations to assist incubatees in gaining access to equipment and other resources. Incubators offered the incubatees a shared co-working space; however, most of the incubatees expected to have their own, individual office space, while some of them found the office space unnecessary because of their business stage.

4. Financial support

In relation to the category of financial support, five second codes were found in two sub-sections, finding investors and use of funding. ***'The readiness of incubatee's business***' was the first theme for finding investors. Incubators expected incubatees to find investors by themselves, and no investor services were provided. However, incubatees thought their business models were not ready to find investors and they did not get any help in finding investors from incubators.

'Sufficient of funding' was the first theme of the use of funding. Incubators expected the incubatees to maintain their cash flow and have enough capital to sustain their start-ups during the incubation period. However, the concerns of some incubatees, who had graduated from a bachelor's degree, was that they did not have enough cash flow to sustain their living expenses, while other incubatees who graduated from master's degrees were concerned that they did not have enough cash flow to sustain their business development after graduating from incubation programme. Incubators expected incubatees to be able to manage their funding and have the flexibility to use the funding. However, different incubatees had different expectations about the use of the funding, because they were at different business stages.

5. Business support services

In relation to the category of business support service, four second codes were found in two sub-sections, which were mentoring and milestone assessment. Accordingly, two first-themes are reported. The first theme of mentoring was identified as ***'Different background***

of mentors' . Incubators expected the incubatees to gain business advice from the pre-incubation business training. However, incubatees expected that incubators should provide mentors from different backgrounds to help them. They were of the opinion that different design businesses had different functions and business needs.

'The function of milestone assessment' was the first theme of milestone assessment. Incubators considered it necessary to monitor the use of funding and incubatees' business by three stages of milestone assessment. However, the incubatees expected they could receive the funding after achieving all the milestone assessments, therefore, they set their goals accordingly so that they could receive the funding and continue their business in the incubation programme. As a consequence the purpose of setting up a milestone assessment is a source of concern, since incubators and incubatees had different perspectives on milestone assessments.

6. Networking

In relation to the category of networking, two first-themes are reported based on five second codes in two sub-sections, internal and external networking. ***'Determined by incubatees' characteristics***' was the first theme of internal networking. Incubators expected that incubatees would explore business relationships with other incubatees by themselves through training and networking sessions. However, incubatees thought they may not be familiar with other incubatees and expected that the incubators would introduce the other incubatees to them. Therefore, incubatees' characteristics may have affected the internal networking.

'Long-term connections with business stakeholders' was the second of the first-themes. Incubators expected the incubatees to participate in the voluntary external networking activities for all incubatees in different disciplines. However, incubatees were of the opinion that these networking activities lacked in-depth discussions with other people and no follow-up service was provided by incubators to connect them with these business partners.

7. Entrepreneurship training

In the category of entrepreneurship training, one first theme was reported based on comparing three second codes. It is ***'Customised training for design start-ups'.*** Incubators

expected that incubatees had learnt entrepreneurial skills from pre-incubation training, which is general business training for all incubatees. They thought that the nature of the business of all of the incubatees was the same and similarly, that their need for business knowledge was the same. However, the incubatees had expected that the training should be related to design start-ups and specifically to design business. The incubators considered that pre-incubation training was sufficient and that subsequently they could learn about business by themselves. Although the incubatees did learn business skills by themselves, they considered business acumen to be also dependent on the motivation of entrepreneurs.

7.3. Final themes of BI process: cross-case analysis

In the above section, 12 first themes in Case A and 12 first themes in Case B regarding incubator's and incubatees' expectations and the six categories of business incubation process are reported. In this section, the results of the first themes in the two cases are synthesized. The initial results were further discussed with the first codes reported in the literature review to confirm the content and description of new findings as final themes. Table 7.3. shows the total 14 final themes obtained as the results of cross-case analysis and the literature discussion.

Table 7.3 The summary of final themes

BI process	Government-based incubator (Case A: DIP)	University-based incubator (Case B: Microfund)	Final themes
	First themes		
Incubator's objectives	A(1) Clear programme objectives	B(1) Clear programme objectives B(2) Lack of research on business incubation for design start-ups	(1) Clear programme objectives (2) Lack of research on business incubation for design start-ups
1. Selection process and exit policy	A(2) Incubatees' business development A(3) Set up a design start-ups community	B(3) Clear programme objectives	(3) Incubatees' business development (4) Set up a design start-ups community (5) Clear programme objectives
2. Infrastructure	A(4) Convenient A(5) Flexibility of the office usage	B(4) Convenient B(5) Flexibility of the facilities usage	(6) Location- convenient (7) Flexibility of the facilities usage
3. Financial support	A(6) Readiness to find investors A(7) Cash flow and business plan development	B(6) The readiness of Incubatees' business B(7) Sufficient of funding	(8) The readiness of Incubatees' business (9) Funding allocation for different design disciplines
4. Business service support	A(8) A design start-up community with long-term mentors A(9) The function of milestone assessment	B(8) Different background of mentors B(9) The function of milestone assessment	(10) Long-term mentors (11) The role of incubator in the milestone assessment
5. Networking	A(10) The function of internal networking A(11) Set up a design start-up community	B(10) Determined by Incubatees' characteristics B(11) Long-term connections with business stakeholders	(12) Importance of internal networking (13) Set up a design start-up community
6. Entrepreneurship training	A(12) Customised business training for design start-ups	B(12) Customised training for design start-ups	(14) Customised entrepreneurship training for design start-ups

7.3.1 Incubators' objectives

Concerning the incubator's objectives and incubatees' expectations before applying for the programmes, three first themes were reported as the result of the two-case analysis. There are two final themes reported in this category, clear programmes objectives and lack of research on business incubation for design start-ups.

'Clear programme objectives' are explained in four points according to the codes and first theme. Firstly, the incubator should provide clear incubation programme objectives to the incubatees before they decide to apply for the programmes and during the incubation period. Secondly, there are various objectives among incubators due to the nature of the incubator (e.g. government or university), amount of fund, targeted incubatee, etc. Thirdly, the criteria of incubator's objectives may be determined by their organisations' policy. In the fourth instance, incubators had high expectations of incubatees in the incubation process. The four points supply the foundation of an explicitly defined programme objective, which is shared with incubator and incubatees internally. The theme of ***'Clear programme objective'*** indicates that Incubators should explain the details of the objectives to incubatees before they apply for the programme and during their incubation period so that they will not misunderstand incubation programmes' objectives.

'Lack of research on business incubation for design start-ups' is reported based on discussion about two main points. Firstly, the unclear incubator objectives may result in a misunderstanding of incubation services and support. Secondly, the business model of design firms differs from that of technology-based incubatees. As Heskett *et al.* (2017) stated, the essential design functions in a firm depend on three levels: "1) Concepts of design planning; 2) The management of design; 3) Design practice and the application of design"(p.169). These three levels are not the services and supports that incubators define. It was unsurprising that both Case A and Case B focused on incubatees' business plans rather than the above three levels in a design firm. They used the technology-based incubator firm framework to apply to design firms. This may not workable in the case of design start-ups.

7.3.2 Selection process and exit policy

Concerning the first category of BI process, selection process and exit policy, four first themes were reported as the result of the two-case analysis. They are further combined into three final themes.

The first combined final theme is ***'Incubatees' business development'***. Both incubators in this case study used 'picking-the-winners' approaches (Bergek & Norrman, 2008). There are certain points related to 'Incubatees' business development'**.** In the incubatees selection period, incubators reject any unsuitable candidates receiving funding. However, the selection criteria mainly emphasised the incubatees' business plans, instead of the formation of a design firm and the principal design functions in a firm as Heskett *et al.* (2017) stated. In terms of managing design start-ups both cases used the technology-based incubation process. The motivation for applying the funds also implies the development of incubatees.

The second final theme was ***'Set up a design start-up community'***. Although there are formal design associations, nascent designers or design incubatees do not satisfy with the goals of these formal design associations. This is also supported by previous studies with further explanations about formal design community. It has been stated that the design community is an ecosystem that is driven by design, manufacturing and entrepreneurship, and generates value for economic development (Collins, 2015; Porfirio *et al.* 2016). As nascent entrepreneurs, designers may have difficulty connecting with people from outside the community when they present their designs to clients (Nielsen *et al.* 2018). In this case, a design start-up community is needed.

The third final theme is ***'Clear programme objectives'***. It was found that there were significant numbers of successful graduates from the two incubation platforms, and incubators approved most of the incubatees on their targeted revenue as the milestones assessments. This is partly due to the clearly defined programme objectives. In addition, the incubators' objectives are developed based on the their resources (Gertner, 2013). In the two cases, incubators support incubatees based on their limited resources.

7.3.3 Infrastructure

For the second category of BI process – infrastructure - four first themes were reported as a result of the two-case analysis. Finally, two combined final themes were generated. They were convenient location and flexibility of facilities usage.

'Convenient' was reported as main consideration for the location of the incubation centre. It was discovered that different design disciplines may have different needs for facilities or equipment. Both incubators located their incubation centres in areas where suppliers and clients could easily make contact with incubatees. This finding is supported by Comunian *et al.*'s (2010) suggestions of place-specific industry areas. However, it was also found that collaboration with different stakeholders, such as suppliers, manufacturers, corporations or associations, was needed. it is recommended to have a design incubatee community to connect with the stakeholders. Incubatees can quickly connect with these stakeholders through websites, online communications, social media and virtual networks for business in the community. Therefore, ***'Convenient'*** was confirmed as a final theme in infrastructure in the BI process for design start-ups.

For the facilities in the incubation centre, the first combined second theme is ***'Flexibility of the facilities usage'*** which combined the first themes of both cases. Two incubators provided office space to incubatees and they also are concerned their limited resources to incubatees. If incubatees requested extra services or space, then they had to find other funding resources or investors to pay for these.

For the purpose of co-working space in the university, it was found that the facilities and infrastructure were based on a technology start-up setting, instead of design start-ups. Generally, for technology start-ups, a primary office setting is enough. However, there are additional infrastructure settings in the creative industries (Maryunani & Mirzanti, 2015) and different types of design businesses (Fong, 2020). It was suggested that incubators should collaborate with other suppliers and companies who have those facilities or equipment for incubatees.

7.3.4 Financial support

Concerning the third category of BI process – financial support - two final themes were generated based on the four first themes. These were the readiness of incubatee's business and funding allocation for different design disciplines.

Concerning ***'The readiness of incubatees' business'*** , both incubatees in the two cases reported that it was hard to find investors. In addition to this their businesses were not ready to be introduced to investors. This may be explained by the fact that the focus of design start-ups is developing their designers' brand and the quality of design, instead of finding investors (Aakko & Niinimaki, 2018). Added to this the readiness of the entrepreneur is dependent on the business strategy and model of the design start-ups. Neither the design start-ups nor the investors knew about the investment methods for design start-ups with different design business strategies and models.

'Funding allocation for different design disciplines' was reported as a main concern on the part of the design start-ups. Design incubatees normally lack accounting and financial management knowledge. They worry about their cash flow and sufficient budget to develop products and promote them. In both cases, funding allocation is considered to be an efficient way to guide incubatees' financial plans and management. Since different design businesses vary in the type of business models, it is apparent that incubators are the crucial mediators to provide funding information to incubatees.

7.3.5 Business support services

Concerning the fourth category of the BI process – business support services - two final themes were obtained based on the four first themes. They were long-term mentors and the function of the milestone assessment.

'Long-term mentors' is reported as a new theme, and different from the practice of arranging mentorship on a one-off and short-term basis. Due to limited consultation time and mentors' limited understanding of the design industry, incubatees cannot get sufficient support in the course of one meeting. Long-term mentors with relevant experience in the area of design start-up are suggested. This has been reported in previous studies on sharing experience between senior fashion designers and nascent fashion entrepreneurs (Malem, 2008).

Therefore, a new design start-up community with long-term mentors is suggested to accommodate the needs.

'The role of the incubator in the milestone assessment' is in need of clarification. Although both incubators had milestone meetings with incubatees, these could not meet the needs of the incubatees wishing to develop their business goal development. Incubators only provided the necessary business services referrals to incubatees. However, incubatees expected that the incubation managers would provide guidance to their businesses during the milestone assessment meetings. In both cases, the incubation managers had no background in design and could only refer incubatees to some of the business stakeholders. It is suggested that incubation managers should understand incubatees' business in order to connect incubatees with other stakeholders(Theodorakopoulos *et al.* 2014). As previously indicated a design start-up community could be capable of assisting the incubatees and their enterprises in different design disciplines. The incubators could monitor the milestone assessment to determine whether or not the funding was being used appropriately. As indicated in literature of relevance, one of the critical success factors of an incubator is concise programme milestones with clear policies and procedures (Bacalan *et al.*, 2019; Shepard, 2017; Smilor, 1987a; Somsuk & Laosirihongthong, 2014; Wiggins & Gibson, 2003).

7.3.6 Networking

Concerning the fifth category of the BI process, networking, two final themes were obtained based on four first themes. The two final themes are importance of internal networking and a design start-up community. ***'Importance of internal networking'*** shows that incubatees value interactions with other incubatees. These are the opportunities for them to exchange information and share experience in business challenges. Fixed incubation offices may enhance the networking between incubators and incubatees. Creative entrepreneurs have different ways of thinking and values from those of traditional entrepreneurs (Werthes *et al.* 2017). However, they have to balance 'artistic, financial and self-development needs' to manage the business with creative strategies. Therefore, the structure of the networking is important to enhance incubatees' development and the networking in the BI process. For the external networking, the reported final theme is ***'Set up a design start-up community'***. Incubatees are concerned about external networking with investors, clients or others

stakeholders, since this is the opportunity for them to create business opportunities. However, they are also concerned about the quality of these networking interactions, and whether they are effective or not. They argue that such networking functions might not be tailor made for a specific design business, and the links between these functions are unclear. This is contradictory to past literature which indicates that such activities help incubatees to gain access to resources and knowledge (Hughes *et al.*, 2007), professional services (Barrow, 2001; Hackett & Dilts, 2004a; Sherman & Chappell, 1998), and to trigger a high level of social capital (Maula *et al.*, 2003; Tötterman & Sten, 2005).

In this research, both incubators' representatives stated that they did not have enough resources and knowledge to connect all the potential investors or interested parties with all the design incubatees. It is suggested that more cooperation, core competencies and knowledge base in a specific market focus might be needed (Hansen *et al.*, 2000; Tötterman & Sten, 2005). A new design start-up community may be an efficient solution to supplement the knowledge of the incubators.

7.3.7 Entrepreneurship training

On the subject of the sixth category of the BI process, entrepreneurship training, one final theme, ***'Customised entrepreneurship training for design start-ups'*** was obtained based on three first themes.

This theme was identified as the final theme because both cases were based on a technology-based incubation process to develop their incubation programmes. The training programme organised by incubators was not a customised training programme for design incubatees, who wished to know more about the specific strategies of relevance to the design business. Added to this their business models varied according to the different design disciplines. These specific requirements were not taken into consideration in the training programmes.

Another suggestion is that the training programmes target particular stages of business development. This concept is supported in previous studies on design start-ups. It has been reported that design entrepreneurs were required to combine their creative process and business practices (Mills, 2011).

7.4. Final framework – 'Business Incubation Process for Design Start-ups'

The reported 14 final themes integrates the two perspectives, incubator and incubatees, with a focus on design start-ups. When compared with the first codes of these seven elements describing a BI process as the result of literature review reported in Chapter two, the final themes supply new content and perspectives for each element (Table 7.4), compared to the previous studies which were limited to the incubator's perspective and non-design start-ups, our findings the incubatees' and incubators' perspective. It supplies the incubatees' perspective of BI process and extend our understanding of BI process from non-design start-ups to the design start-ups. According to these findings, the initial conceptual framework of BI process was modified and the result is shown in Figure 7.1.

Table 7.4 Summary of all the final themes

BI process	Final themes
1. Incubator's objectives	(1) Clear programme objectives (2) Lack of research on business incubation for design start-ups
2. Selection process and exit policy	(3) Incubatees' business development (4) Set up a design start-ups community (5) Clear programme objectives
3. Infrastructure	(6) Convenient (7) Flexibility of the facilities usage
4. Financial support	(8) The readiness of Incubatees' business (9) Funding allocation for different design disciplines
5. Business service support	(10) Long-term mentors (11) The role of the incubator in the milestone assessment
6. Networking	(12) Importance of internal networking (13) Set up a design start-up community
7. Entrepreneurship training	(14) Customised entrepreneurship training for design start-ups

The revised framework consists of four main parts and two checking points. The four parts are: 1) background of the incubatees and incubator, as well as the selection process of incubatees; 2) services and support of the incubation programme; 3) networking; and 4) exit policy. The two checking points are revised funding and support, as well as the milestone assessment.

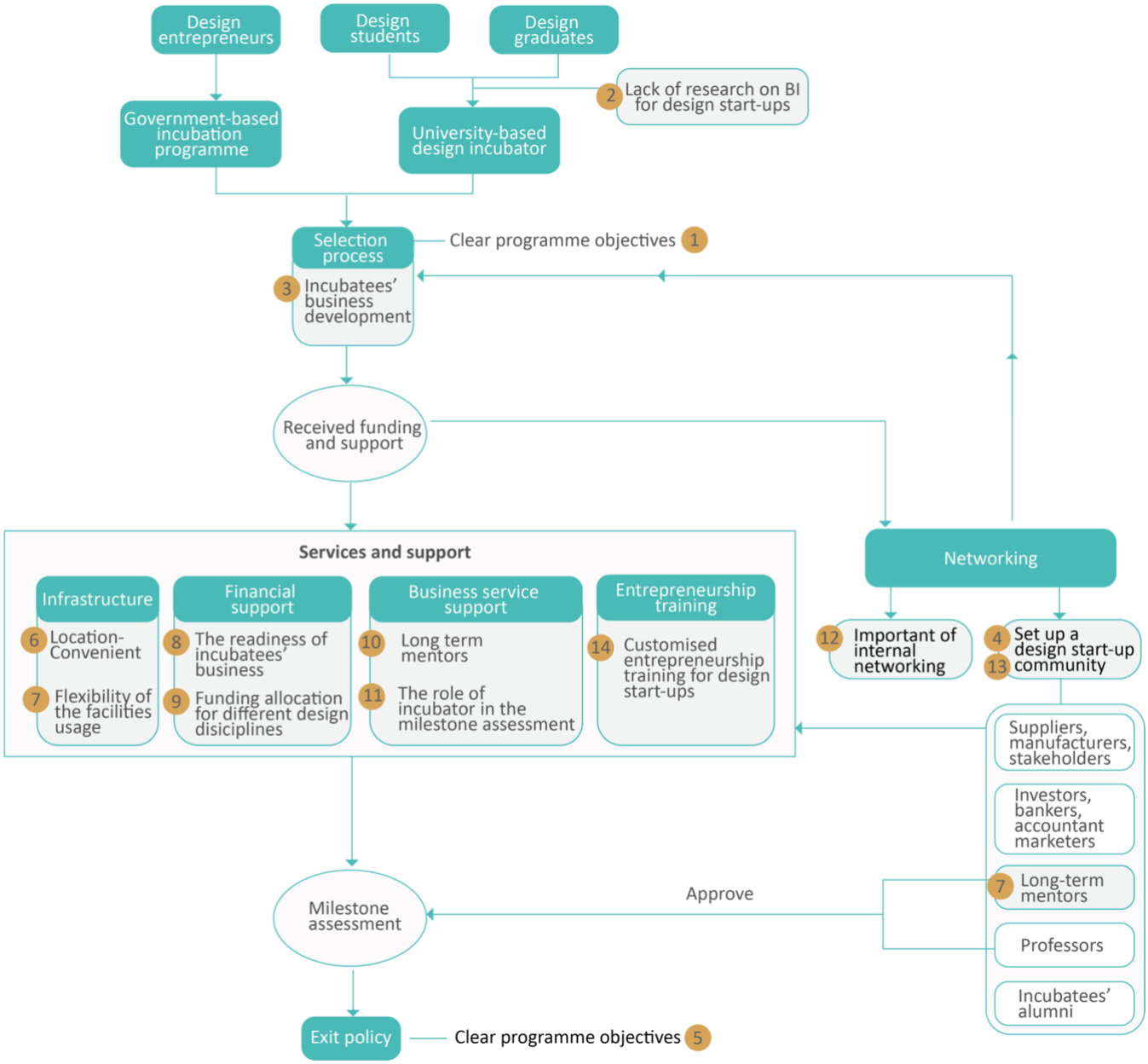


Figure 7.1 Final framework of business incubation process for design start-ups (Source: author's own)

The first part of the objectives of the BI programme is mainly contributed by the first, second and the third final themes of the incubator's objectives. They are ***'Clear programme objectives'***, ***'Lack of research on business incubation for design start-ups'*** and ***'Incubatees' business development'***. These are the three themes reported in this research and were not stated in previous studies. They imply the concerns from incubatees, who face the challenges of developing their business plans with limited knowledge of business and guidelines for design start-ups developed from research. These may influence the design entrepreneurs'

decision to apply for the incubation programme and also their performance in the selection process.

The second part of the service and support of the incubation programme consists of the four main categories in the original framework reported in chapter two as the result of the literature review. However, through this study on design start-ups and with an integrated perspective of incubatees and incubators, the content of the four elements are enriched with reported seven final themes (the sixth to twelfth final themes). The themes indicate the concerns from the design start-ups side, which represents the nature of the design business.

The third part of networking is highlighted as an independent section with four final themes, including the fourth, seventh, twelfth and thirteenth final themes reported in this study. Instead of a category in the original framework based on reviewing previous studies, the newly reported themes are suggested to the networking category. Besides suggestions on enhancing the internal network between various design businesses and disciplines, as well as setting up a design start-up community in the incubation programme to link external resources, the list of key stakeholders of the networking is reported. These stakeholders are served for design start-ups and show the characteristics of the design business, which is different from other types of start-ups, such as tech start-ups or non-design start-ups. Suppliers, investors, long-term mentors, professors and incubatee's alumni are reported. The incubatees are equipped from the learning experience and establishing their resources based on networking. In this case, networking is emphasised by them and viewed as a key factor to their business success.

The final fourth part of the exit policy is contributed by the 5th final theme. Although the statement of the 5th final theme is the same as the first theme, their meanings are different due to the contribution in two different categories. The different meanings are shown in three points. Firstly, the Incubator's perspective is a new category reported in this study and the first final theme is the description of it. When compared to the initial codes based on the literature review, the incubator's objective is the newly reported category, which is beyond the BI process, while exit policy is the final category in the BI process based on those previous studies. Secondly, the "clear programme objective" supplies the description of the exit policy, which is a vague concept without explicit definition in previous studies. Finally, the same

programme objectives are highlighted at the beginning when selecting design start-ups and at the ending of the BI process at the stage of exit policy. This indicates an action guideline to check the effectiveness of the incubation programme at the two points of the BI process.

The final framework of the BI process for design start-ups illustrates the final themes and enriches our understanding of the BI process for design start-ups with an integrated perspective of incubatees and incubator. As reported in the discussion of the research gaps, previous studies on the BI process were limited to the incubator's perspective and did not consider design start-ups. As a result, the reported initial framework of the BI process based on the literature review in chapter two is a general one. By way of contrast the reported final framework indicated the requirements from design start-ups and incubatees' perspectives, which supply an explicit description of existing categories and highlight the importance of networking. With the final themes, the detailed guideline on achieving the aims according to the seven categories is reported. The visualized 14 final themes based on the general BI process show the specific considerations for design start-ups.

7.5. Validation of the findings

In the previous chapters, the three main findings based on the direct results of the first codes and second codes of BI process in this research are reported. They are 1) six categories of BI process obtained based on literature review and reported in Chapter Two; 2) the incubatees' perspectives on the six categories of BI process stated in Chapter Six; 3) the BI process for design start-ups shown in the section of 6.3 in the Chapter Six.

Expert interviews were conducted in order to validate the three main findings. A total of six experts from two areas of expertise participated in these interviews. Three of them were from the academic field of design entrepreneurship and three represented the area of design incubation. The background information of the six experts is shown in Chapter 3, Table 3.18.

The interviews were conducted via online meetings and face-to-face meetings. The expert interviews consisted of two parts, a pre-interview online survey and semi-structured interview for further explanation. In the first part of a pre-interview online survey, each expert was required to reply to an online survey with reported first codes and second codes of the seven elements to indicate their views on them. In the survey, identified coding results of the

six categories in the three findings were listed and experts evaluated them according to their professional knowledge and experience with reference to a five-point Likert scale, from not important, moderately important to very important. In the second part of the face-to-face interview, a further explanation was sought for the evaluated results in the survey. Since the results reported in the research were all new, the expectation was that all the evaluations should be indicated as "very important" or "important". In this case, those unexpected results, such as those evaluated as "not important" or "slightly important", were clarified in the face-to-face interviews. The results of the expert interviews are reported in the below sections according to the three findings.

7.5.1 The first finding: basic six categories of BI process from literature review

Since the six categories are the results reported as the literature review to describe the BI process, experts evaluated them directly. The results of the survey show that all the experts highly agreed with the importance of the first category of the *Selection process and exit policy* and the fifth category of *Networkin*g, with a total Mean (M) of 4.5. They also viewed the third and fourth categories as important ones with total Mean of 4.2 and 4.3. In the case of the 6th category, the experts agreed that it was less important when compared to the other categories, with the lowest total Mean of 3.5. This was further explained by the experts (A3) that design entrepreneurs learnt the business by themselves through their daily business operations. Instead of the general entrepreneurship training without customized content for design start-ups, mentorship is more important and effective.

For the second category of *Infrastructure*, there were different opinions from the experts (with SD 1.03), with one industrial expert viewing this as "very important" and one academic expert indicating that it was only "slightly important". The industrial expert was of the view that infrastructure should be the main resource supplied by the incubator. Even if the incubator lacked sufficient equipment as required by the design start-ups, they should actively collaborate with other suppliers to help the incubatees. The response which indicated this was only of slight importance is explained as the unnecessary assets for supplying all the equipment by the incubator. Instead, the incubatees may need to find resources of equipment by themselves. In effect, all of the experts agreed with the fact that infrastructure was important to design start-ups. However, they differed in their opinions on who should

supply or seek the resources of the infrastructure. As a result of the analysis, infrastructure can be reported as an important category of the BI process. Finally, all the six categories reported as the initial findings from the literature review were verified as valid. Table 7.5 shows the rating result on the BI process from the experts.

Table 7.5 Rating result on the BI process from the experts

BI process	Industry experts			Mean (Industry)	Academic experts			Mean (academic)	Mean (total)	SD
	1	2	3		1	2	3			
	Rating (1 to 5)				Rating (1 to 5)					
1. Selection process and exit policy	4	5	4	4.3	5	5	4	4.7	4.5	0.55
2. Infrastructure	4	3	5	4.0	4	2	4	3.3	3.7	1.03
3. Financial support	4	3	5	4.0	4	4	5	4.3	4.2	0.75
4. Business service support	4	4	5	4.3	5	3	5	4.3	4.3	0.82
5. Networking	4	4	4	4.0	5	5	5	5.0	4.5	0.55
6. Entrepreneurship training	4	4	3	3.7	3	3	4	3.3	3.5	0.55

7.5.2 The second finding on the incubatees' perspectives on the six categories of BI process

In this finding, a total of 31 second codes obtained from the two cases were summarized according to the six categories. It represents the viewpoint of incubatees on BI process, untouched in previous research (Table 7.6).

Table 7.6 Rating result on the incubatees' perspectives on the six categories of BI process 31 second codes from the experts

BI process	No.	Incubatees' perspectives (Second codes)	Industry experts			Mean (Industry)	Academic experts			Mean (Academic)	Mean (Total)	Standard deviation
			1	2	3		4	5	6			
			Ratings				Ratings					
1. Selection process and exit policy	(1)	Lack of full-time partners	4	3	4	3.7	4	4	4	4	3.8	0.4
	(2)	Longer incubation period	4	2	3	3	4	3	3	3.3	3.2	0.8
	(3)	Longer follow-up business services after incubation	4	4	4	4	5	3	4	4	4	0.6
	(4)	Living expenses and funding resources	4	3	4	3.7	4	4	4	4	3.8	0.4
	(5)	Different expectations and personal development of each founder	4	3	3	3.3	5	4	3	4	3.7	0.8
2. Infrastructure	(6)	Close to suppliers and living space	4	3	4	3.7	4	4	4	4	3.8	0.4
	(7)	Workshop with necessary design equipment	3	4	3	3.3	3	4	3	3.3	3.3	0.5
	(8)	The functionality of an office space	4	3	3	3.3	3	2	4	3	3.2	0.8
	(9)	Convenient	4	3	4	3.7	4	4	4	4	3.8	0.4
	(10)	Cannot access to the university's facilities	4	3	4	3.7	4	4	5	4.3	4	0.6
	(11)	Expected an individual office	4	3	4	3.7	4	4	4	4	3.8	0.4
3. Financial support	(12)	Difficult to find related investors	4	4	4	4	5	5	4	4.7	4.3	0.5
	(13)	not enough cash flow	4	2	3	3	4	5	5	4.7	3.8	1.2
	(14)	The flexibility of using the funding	4	3	5	4	3	5	4	4	4	0.9
	(15)	Lack of resources and the readiness of their businesses	3	3	5	3.7	4	3	4	3.7	3.7	0.8
	(16)	Lack of capital	3	4	4	3.7	4	3	4	3.7	3.7	0.5
4. Business service and support	(17)	Mentors are not familiar with design business	4	3	4	3.7	5	3	4	4	3.8	0.8
	(18)	Long-term mentors	4	5	4	4.3	5	4	4	4.3	4.3	0.5
	(19)	The milestones were under their control	4	4	4	4	5	3	3	3.7	3.8	0.8
	(20)	Different background of mentors	4	4	3	3.7	5	4	4	4.3	4	0.6
	(21)	Received the funding	4	3	4	3.7	4	3	5	4	3.8	0.8

Table 7.6 (continued)

5. Networking	(22)	Compulsory and voluntary based networking	4	4	4	4	4	5	3	4	4	0.6
	(23)	Connect with other stakeholders	4	3	5	4	5	4	4	4.3	4.2	0.8
	(24)	Different needs of each design business	4	3	5	4	4	3	4	3.7	3.8	0.8
	(25)	No connections with other incubatees	4	3	4	3.7	4	3	4	3.7	3.7	0.5
	(26)	Lack of in-depth discussion with other stakeholders	4	3	5	4	5	5	5	5	4.5	0.8
	(27)	Follow-up business service	4	4	4	4	4	3	5	4	4	0.6
6. Entrepreneurship training	(28)	Design-related business sharing and learning	4	4	4	4	4	3	4	3.7	3.8	0.4
	(29)	Learnt from experience by themselves	4	2	3	3	3	4	4	3.7	3.3	0.8
	(30)	General training for all incubatees	4	3	4	3.7	4	4	4	4	3.8	0.4
	(31)	Adjusted the content to design business by themselves	4	2	5	3.7	5	3	3	3.7	3.7	1.2

According to the survey results, the opinions on the 27 second codes from two groups of experts were divided into four groups according to their total Mean and SD (Table 7.7). The first group are the second code with the highest Mean (M=4~4.5) and relatively low SD (SD=0.5~0.9), which showed that the experts agreed with the importance of the explored codes. The second groups included those second codes results and experts agreed with their importance with a middle Mean (M=3.7~3.8) and relative low SD (SD=0.4~0.8). There is a total of 21 codes results (out of a total of 27) in the first two groups. This shows that experts agreed with the importance of the most of the reported codes.

Table 7.7 The 31 second codes in four groups of results

Group	No.	Incubatees' perspectives (Second codes)	1. Selection process and exit policy	2. Infrastructure	3. Financial support	4. Business service and support	5. Networking	6. Entrepreneurship training
1st group	3	Longer follow-up business services after incubation	4(0.6)					
	10	Cannot access to the university's facilities		4(0.6)				
	12	Difficult to find related investors			4.3 (0.5)			
	14	The flexibility of using the funding			4 (0.9)			
	18	Long-term mentors				4.3 (0.5)		
	20	Different background of mentors				4(0.6)		
	26	Lack of in-depth discussion with other stakeholders					4.5 (0.8)	
	23	Connect with other stakeholders					4.2 (0.8)	
	22	Compulsory and voluntary based networking					4 (0.6)	
	27	Follow-up business service					4 (0.6)	
2nd group	1	Lack of full-time partners	3.8 (0.4)					
	4	Living expenses and funding resources	3.8 (0.4)					
	6	Close to suppliers and living space		3.8 (0.4)				
	9	Convenient		3.8 (0.4)				
	11	Expected an individual office		3.8 (0.4)				
	30	General training for all incubatees						3.8 (0.4)
	5	Different expectations and personal development of each founder	3.7 (0.8)					
	15	Lack of resources and the readiness of their businesses			3.7 (0.8)			
	16	Lack of capital			3.7 (0.5)			
	17	Mentors are not familiar with design business				3.8 (0.8)		
	19	The milestones were under their control				3.8 (0.8)		

Table 7.7 (continued)

2nd group	21	Received the funding				3.8 (0.8)		
	24	Different needs of each design business					3.8 (0.8)	
	25	No connections with other incubatees					3.7 (0.5)	
	28	Design-related business sharing and learning						3.8 (0.4)
3rd group	13	Not enough cash flow			3.8 (1.2)			
	31	Adjusted the content to design business by themselves						3.7 (1.2)
4th group	2	Longer incubation period	3.2 (0.8)					
	7	Workshop with necessary design equipment		3.3 (0.5)				
	8	The functionality of an office space		3.2 (0.8)				
	29	Learnt from experience by themselves						3.3 (0.8)

The third group consisted of two codes, with a middle level mean (3.7-3.8), but high SD=1.2. This represents the different opinions from the experts on the two codes. The two codes are in the categories of '*Financial support'* and '*Entrepreneurship training'*. The final group was the four codes with the lowest mean (3.2~3.3) and a relatively low SD (0.5~0.8). This implies that the experts all considered the results of the code to be of lesser importance than the codes in the other three groups. In this case, further explanations on the two codes with the highest SD and the four codes with the lowest Mean were sought from experts. The tenth and twenty-seven codes were evaluated with average mean level (3.7-3.8), but with the highest SD=1.2.

The 13th code was ***'Not enough cash flow'***. Some experts agreed that lacking enough cash flow was the main reason for applying to incubation programme and it was also the main resource supplied by the incubator. However, others commented that the incubatees should secure their cash flow before applying to the incubation programme. This should be a basic requirement for applicants and it shows that incubatees have the capability to sustain their business within the incubation period, and not purely rely on incubator's funds. Therefore, they were of the opinion that cash flow was unimportant to incubatees. Since the codes results should represent incubatees' perspectives, the opinion from this group of experts cannot be taken into consideration.

For the 31st code, ***'Adjusted by themselves of the content to design business'*** in the entrepreneurship training category, the disagreement was caused by the different understanding of the code meaning. An industry expert think that the incubator should provide the business training for design start-ups. In this case, incubatees should not adjust the content by themselves. In fact, a training programme can only supply basic guidelines to incubatees as a reference, instead of providing customized strategy information for individual incubatees. To avoid the misunderstanding, the description of the code was adjusted into ***"Adopting content to their design business".***

For the four codes (Code 2nd, 7th, 8th and 29th) with the lowest Mean, ranging from 3.2 to 3.3, further explanations were also sought from expert interviews. For the 2nd code, ***'Longer incubation period'***, although most of the experts agreed with a longer incubation period, they also mentioned the rational duration. On the one hand, the incubation period is important.

But the current duration is normally two years, which is rational according to the facilities and investment. According to the experts, some of the experts think that after graduating from the programme, the incubatees should have sufficient capability to sustain their business. On the other hand, the incubation period is suggested to be reviewed by business stages. The final milestone should be an assessment for incubatees' graduation. Some of the experts opined that the incubatees' business should be sustained for a further period of six months. This view from the experts differed from that of the incubatees.

For the 7th and 8th codes, ***'Workshop with necessary design equipment'*** and ***'The functionality of an office space'*** were all in the infrastructure category. None of the experts had any specific comments on these two items, but they didn't view it as an important element. They were of the opinion that the infrastructure of the facilities in the incubation centres were based on the resources of the incubator. If the incubators' resources are sufficient, they can provide more facilities and equipment for different design businesses. The different opinions of the incubatees and experts could be a topic for further studies.

The 29th code, ***'Learnt from experience by themselves'*** is in the entrepreneurship training categories. Experts agreed that incubatees should learn business skills by themselves to gain experience, since an incubator could not provide all of the necessary training to incubatees. The respondents did not have strong opinion on the code results. As the result, it was not evaluated as an important element for the incubation process.

In summary, although two codes were assessed by the experts with different views and four codes were not seen as important ones, the overall results indicated an agreement on the total of 31 second codes. The different opinions are explained as follows. When compared with the incubatees, the experts tend to have a holistic view of the BI process and taken multiple stakeholders into consideration. Moreover, their expertise was not only in the field of design start-ups, but also in other types start-ups, such as technology incubator or social incubator. As the results, they naturally compared the opinions from design incubatees with other incubatees. In this case, certain special considerations from design incubatees' side were not viewed as important as others by the experts. It is suggested these different opinions could be the topic of further studies.

7.5.3 The Third finding on the BI process for design start-ups

Through synthesizing reported results of second codes in the two cases from the incubator's perspective, a total of seven codes were reported as the special concerns of the BI process for design start-ups. This is different from the content of the initial content of six categories identified based on the literature review in Chapter Two. The results of the experts interview on the findings about the incubator's perspective of design start-ups are reported in Table 7.8. The results were classified into three groups based on the evaluation from the experts. The first groups are the 1st , 4th and 5th codes with a mean over 4.0 and SD between 0.6 to 0.8. This shows the agreement of experts on these codes. The second group consists of the 3rd and 7th codes, which are with a middle-level mean (3.5 to 3.7) and relatively low SD (0.5-0.8) as the first group. This indicates that the experts thought the codes were relatively important to design start-ups. In the final group, the 2 and 6 codes show the lowest mean (3.2) and different SD (0.8 and 1.2). Table 7.8 shows the experts reviews on the findings of incubator's perspectives for design start-ups.

Table 7.8 Experts reviews on the findings of Incubator's perspectives for design start-ups

BI process	No.	Design start-ups (Second code)	Industry			Mean (Industry)	Academic			Mean (Academic)	Mean (total)	SD
			1	2	3		4	5	6			
Selection process and exit policy	1	Difficulties of business model	4	4	4	4.0	5	3	4	4.0	4.0	0.6
Infrastructure	2	Close to other design companies	3	2	3	2.7	4	3	4	3.7	3.2	0.8
Financial support	3	Investors services provided	3	3	4	3.3	4	4	4	4.0	3.7	0.5
	4	Can sustain their living expenses	4	3	5	4.0	4	5	4	4.3	4.2	0.8
Business service support	5	Advice only for reference	4	3	4	3.7	4	5	4	4.3	4.0	0.6
	6	Business development assessed in three stages	4	1	3	2.7	4	3	4	3.7	3.2	1.2
Networking	7	Provide networking activities for all disciplines in voluntary based	3	2	4	3.0	4	4	3	4.0	3.5	0.8

In the final group, the ***"Close to other design companies"*** in the category of infrastructure and the 6th code ***"Business development assessed in three stages"*** in the category of business service support were reported with the lowest mean of 3.2. Further explanations on the low Mean were sought from expert interviews. For the 2nd code result, 'Close to other design companies', most of the experts agreed with its importance to design start-ups. However, a few experts also raised the issue that it is difficult to establish an incubation centre

near to all design companies. For the 6th code, ***'Business development assessed in three stages'***, some experts disagree with this. They thought there wasn't a standard incubation stages and process for start-ups, especially for design start-ups. As a consequence it was difficult for an incubator to access an incubatee's business in the three stages of the incubation period. As the result, the description was modified as ***"Business development assessed in the main stages"***.

CHAPTER 8. CONCLUSION

CONTENT

8.1. Chapter introduction

As the final chapter of this thesis, the main research findings are reported. These findings answered the research questions, contribute to the theory of design entrepreneurship significantly, and show the potential of applied by beneficiaries. Furthermore, the limitations of this study and future development of the study are indicated at the end.

There are four main research findings reported in this research. Firstly, the six categories of BI process was reported as the first code from literature review in Chapter Two. It is limited in non-design start-ups and only from the perspective of incubator. This six categories supplied a framework of this research in case study and were applied as an analytical frame of within-case and cross-case analysis. Secondly, the incubatees' perspective of the BI process was stated through comparing the second codes of incubatees' perspective in case A and B with the first code of six categories from the literature review. Thirdly, the characteristics of BI process for design start-ups were reported based on the comparison between BI process from incubator's perspective in case A and B with the first code of the six categories from the literature review. Finally, the final themes were obtained through cross-case analysis to show the BI process of design start-ups with an integrated perspectives of incubator and incubatee. The final framework of BI process was also reported accordingly.

8.2. Research findings

With the four main research findings, the main research question and three sub-questions were answered. The Research objectives were also obtained. The relationships between the four main findings, research question and the objectives are shown in Table 8.1.

Table 8.1 Summary of the findings related to the objectives of this thesis

Findings	Research Questions	Objectives
1st finding: The initial six categories of the first code from literature review	SQ3: What are the key elements of business incubation process for design start-ups?	To explore the business incubation process for design start-ups from two perspectives, incubator and incubatees.
2nd finding: The incubatees' perspective of incubation process	SQ2: What are the design incubatees' expectations and perspectives on their business incubators in terms of services and support?	
3rd finding: The BI process for design start-ups	SQ1: What are the incubator's expectations and perspectives of their design incubatees and the programmes?	
4th finding: Final themes of incubation process.	SQ3: What are the key elements of business incubation process for design start-ups?	To establish an understanding of government-based and university-based business incubation process for design start-ups.
		To develop a framework of incubating design start-ups by business incubator with a process-based view.

8.2.1 The first finding: The initial six categories of the first code from literature review

The first finding is the six categories of business incubation process, which was obtained as the first codes results of literature review in the Chapter Two. The six categories summarized the elements reported in previous studies. It supplied the framework of collecting data and analysing data. The six categories are: 1) selection process and exit policy; 2) infrastructure; 3) financial support; 4) business service support; 5) networking; and 6) entrepreneurship training.

For the first categories of selection process and exit policy, incubators' selection criteria and pre-incubation training, used to identify incubatees who display a high potential of becoming successful entrepreneurs, were explained. For the 2nd categories of Infrastructure, it is related to the incubator's facilities and the location of the incubation centre. For the 3rd to 6th categories, they are related to incubator's services to incubatees, which include financial support, business service support, networking, and entrepreneurial training. In the 3rd category, financial support, it is related to finding investors for incubatees and the use of funding. For the 4th category, business service support, it is related to mentoring, the incubator monitors incubatees' business performance and the progress of their business ventures by means of milestone assessments. In the 5th category, networking, it is related to internal networking within incubatees and external networking in business connection with

stakeholders. In the 6th category, entrepreneurship training, it is related to the business training organised by the incubator to incubatees.

8.2.2 The second finding: incubatees' perspective of BI process

The second finding is the incubatees' perspectives on business incubation process. It fills the gap that there is only incubator's perspective in the previous studies. This finding answered the second sub research question (SQ2):***What are the design incubatees' expectations and perspectives on their business incubators in terms of services and support?*** This finding was obtained through comparing the second code of case A and B from the incubatee's perspective with the first code from literature review, which represents the incubator's perspective.

There is a total of 31 second codes from the incubatee's perspective in the two cases. Among them, 17 codes were reported from Case A and 14 were from Case B. The results of the comparison were reported in three groups, 1) two new elements, which were not in the scope of the first code from the incubator perspective; 2) 16 new content of existing first code from the perspective of incubator; and, 3) two same contents of existing first code.

Different from non-design start-ups, especially tech start-ups, design business varies in their business content, have a longer business development period to develop product, require special equipment and space for the design activities, and suffer the limited investors who are interested in investing design business. This led to the specific requirements from incubatees on the six categories.

The new elements are ***'Different expectations and personal development of each founder'*** in the selection process and exit policy category and ***'Different needs of each design business.'*** It is shown that compared to non-design start-ups, design start-ups vary in their business and selection process, which is never considered by incubators.

The 16 new contents supplied the descriptions of the other six categories of BI from the perspective of incubatee. In the exit policy of the category of the selection process and exit policy, incubatees expected longer incubation period and concern their future development, due to their longer production lifecycle compared to technology start-ups. For the facilities of

the infrastructure category, special function requirement from design start-ups were emphasized. It includes functional space and design related equipment. Finding investors and use of funding in the category of the financial support were also described from the perspective of incubatees. Concerning investors, there is few investors interested in design start-ups. In terms of use of funding, design business may need longer period for their turnover rate. Therefore, they may need to have enough cash flow and capital to sustain their business operation. Mentoring and milestone assessment are the two first codes of the category of the business support service. Mentors with design professional knowledge are required and a longer-term relationship is preferred, due to the longer business turnover and product lifecycle in design business. Since milestones are set up by the incubatees, they may set the simple goals to easily pass the milestone assessment and get the funding. This may result the milestones is meaningless. For the networking, incubatees complain about the useless of the internal networking activities arranged by the incubators. Since there are limited investors interested in design business, incubatees expected incubator to introduce investors via external networking. For entrepreneurship training, design incubatees expected incubator provide entrepreneurship training specifically for design start-ups.

8.2.3 The third finding –BI process for design start-ups

The third findings is the BI process for design start-ups. It was obtained through comparing the second codes of the two cases from the incubator's perspective with first code. As a result, a total of 26 elements were reported of the BI process for design start-ups. The 26 elements were further classified into three groups, 1) new elements, 2) new content, and 3) same content as the literature review. Among them, there is only one new elements and six new content of exiting elements reported. This implies that there is no significant difference between design and non-design start-ups in the BI process. This finding answered the first sub research question: SQ1: ***What are the incubator's expectations and perspectives of their design incubatees and the programmes?***

There are one new element, and 6 new contents of existing elements were found. In the selection criteria, the difficulties of designing business models by design start-ups are reported. This is because the diverse content of its business and a slow turnover rate of the

design business. This is the only new element reported through comparing to non-design start-ups.

The six new contents of existing elements are in the categories of infrastructure, financial support, business service support, and networking.

In the infrastructure, design start-ups require the location closing to other design companies. In this case, they can share information and resources with each other. For the financial support, design start-ups need more service from incubator's side to find investors and design their financial plan. However, Incubator didn't make special service to design start-ups on these issues. There is only same service system as it to tech start-ups, which normally have less problem on finance. For the business service support, it is reported that design start-ups cannot be assessed with a standard three-stage of business development, due to their diverse business types. Although incubation manager gave advice on incubatees' business, these advice are not valuable. These are only a reference for incubatees. For the networking, design start-ups prefer the networking activities for all the design discipline with a voluntary basis.

The results show that from the perspective of incubators, there are not too many differences between design and non-design start-ups. Concerning the one new element and six new contents, these are mainly caused by the diversity of design business covering various design discipline, longer business development process, and lack ideas of financial plan. These are similar characteristics of BI for design start-ups reported in last section.

8.2.4 The fourth finding – final themes of BI process and the framework

The fourth findings is the final themes according to the six categories of BI process and the final framework to illustrate the BI process accordingly. The reported 14 final themes integrate the two perspectives, incubator and incubatees, with a focus on design start-ups. The final themes were obtained through the within-case analysis and cross-case analysis. In the within-case analysis, the second codes from the perspectives of incubator and incubatee were synthesized in each case. The results ware stated as the first themes of the two cases. Then, the first themes of the two cases were compared and combined through cross-case analysis. The results led to the 14 final themes (Table 8.2).

Comparing to the incubator's objective and six categories of BI process as the result of literature review, the final themes supply new content and perspectives. The finding answers the Third sub-research questions: ***What are the key elements of business incubation process for design start-ups?***

Table 8.2 Final themes of the BI process for design start-ups

BI process	Final themes
1. Incubator's objectives	(1) Clear programme objectives (2) Lack of research on business incubation for design start-ups
2. Selection process and exit policy	(3) Incubatees' business development (4) Set up a design start-ups community (5) Clear programme objectives
3. Infrastructure	(6) Convenient (7) Flexibility of the facilities usage
4. Financial support	(8) The readiness of Incubatees' business (9) Funding allocation for different design disciplines
5. Business service support	(10) Long-term mentors (11) The role of incubator in the milestone assessment
6. Networking	(12) Importance of internal networking (13) Set up a design start-up community
7. Entrepreneurship training	(14) Customised entrepreneurship training for design start-ups

Based on the final themes, the initial framework of BI process was revised as a final framework to include the perspective from incubator and the concerns from design start-ups. The revised framework consists of four main parts and two checking points. The four parts are: 1) background of the incubatees and incubator, as well as the selection process as their interaction; 2) services and support of the incubation programme; 3) networking; and 4) exit policy. The two checking points are revised funding and support, as well as the milestone assessment.

8.2.5 Summary of findings

The four main findings presented in this research indicate that there is a difference between the BI process for non-design start-ups and design startups. The first results of the six general BI process categories mainly concern technology start-ups and ignore the diversity of design business covering different design disciplines. The second findings of the design incubatees' perspectives show that the current general BI process may not meet the design incubatees'

needs due to their various business models and business turnover period. As a result, there are considerable differences in the general BI process for non-design start-ups and design start-ups. It was also noted that the current general BI process may not be feasible for design startups. The third findings show that from the perspective of incubators, there is no difference between design start-ups and non-design start-ups when they set up their incubation programme, they used the general BI process for design start-ups. Therefore, most of the third findings are in line with the general BI process. Finally, the fourth findings integrated the perspectives of incubators and incubatees, focusing on the design start-ups in the business incubation process. This final framework integrates both perspectives, whereas the second and third findings were not discussed and discovered in the previous literature review.

8.3. Limitations of the research

There are limitations to this study. Firstly, the qualitative research method was used throughout this research, and there are some views that the use of qualitative research may cause biased data and limit the testing validity of the data (Silverman, 2004). However, the results of this research and the sample sizes of the different types of incubators and incubatees constitute a sufficiently comprehensive test of the sample population (Creswell, 2018; Maxwell, 2013). All the data were analysed with the assistance of computer tools, MAXQDA and ATLAS.ti, to generate the data. A document review and site visits were conducted at the same time, enabling the researcher to develop a conceptual framework, based on an understanding of the underlying phenomena (Maxwell, 2013) and allowing for generalisations to made, grounded on the research findings.

Secondly, there is a limitation on the data collection method in this thesis. As all the interviews and site visits were conducted during the Hong Kong Protest in 2019 and the COVID-19 pandemic, access to the incubation centres' sites and conducting face-to-face interviews were sometimes not allowed. Online interviews and telephone interviews were used as alternative data collection tools, which may have limited interviewees' ability to fully express themselves during the interviews. Restricted access to the incubation centres may have resulted in a delay in the collection of data, as was reflected by the then prevailing circumstances of the centres'

daily business operations and incubatees not being in the office, as not many design start-ups were present in the centres during that period.

A third limitation was that only two types of cases of business incubators were conducted. Multiple case studies in all types of business incubators and the use of multiple researchers to validate the data could not be conducted in this research due to funding constraints and the time limitation. In addition, the selection of samples of interviewees was restricted to four design disciplines (industrial design, fashion design, multimedia design and interior design) and did not include all the design disciplines due to the time limitations and limited resources.

The fourth limitation pertains to the literature available on the subject. There is a dearth of research on the business incubator process for design start-ups, particularly in respect of differences between incubators and incubatees' perspectives. As a consequence, only technology-based incubation literature was used as primary literature, augmented by literature on design start-ups as supplementary background business schools may not be appropriate to teach entrepreneurship and business to design students or graduates, even design entrepreneurs. The differences between learning attitude and the above areas may also be areas for potential future study.

8.4. Significance and contribution of the research

8.4.1 Contribution to the theories of business incubation and design start-up

The four main research findings reported in this research contribute to two theoretical areas, 'business incubation process' and 'design start-ups'.

For the theory of business incubation process, the first research finding establish the six categories to describe the process based on reviewing previous studies. It established a holistic view on this topic. Moreover, it indicated the research gap of limited in the perspective of incubatees in the previous studies. In this case, this research contributes to the business incubation process through bringing incubatee's perspective into discussion.

For the theory of design start-up, which is a main topic of design entrepreneurship, this research describes the business incubation process of design start-ups. This is a research gap

in design entrepreneurship, since there is no study on BI process of design start-ups in previous studies.

Besides contributing to the theories of business incubation process and design entrepreneurship, this research also indicates the un-studied intersection of the two areas, which is business incubation process of design start-ups. To achieve it, an integration of two perspectives of incubatee and incubator was applied to the case study of non-profit business incubator, one government-based and one university-based.

As initial research on the intersection of business incubation process and design start-up, this research established a holistic view with identified final themes and framework. The two cases supplied rich description on the topic with first-hand data collected with triangulation strategy.

8.4.2 Contribution to the practice

The four main research findings have significant contribution to the practice of design entrepreneurship and the incubator. The main beneficiaries are incubator, design start-ups and policy makers.

Business incubators, both government-based and university-based could design and develop their business incubation programme for design start-ups according to the reported findings and framework. The reported final themes, BI process from incubatee's perspective and the distinctive requirement from design start-ups could guide the incubators to extend their service accordingly.

For design start-ups and design industry perspectives, the themes and framework may help them to review business plan, seek resources and support in different incubation stages and select suitable incubation programme.

For policy maker, the findings in this thesis identify policy implications for the BI process for design start-ups. The characteristics of BI process from the perspective of incubatee and design start-ups could be applied as a reference for policy making. With them, new policy to guide incubators' strategy, service, process and mechanism may be considered and released.

Policy enhancing the motivation of design start-ups may also be designed with better understanding of the concerns from design start-ups reported in this research.

8.5. Future research direction

Future studies of BI for design start-ups could address several areas outside the scope of this research. The new, inductively derived constructs in the six categories of BI in the framework were found to be important in the BI process for design industry. An in-depth review of each category in the BI process is necessary to understand the entrepreneurial process of design entrepreneurs. Also, conduct interviews with both incubators in both cases is suggested in the future research to collect the feedback and suggestions from them about the framework and the findings.

Another area of research could focus on the different design disciplines of design sectors performing in the different types of entrepreneurial programmes. For example, there are accelerators, angel investment funds, private funds, corporation entrepreneurship competitions, and university-based entrepreneurial competitions, and since these entrepreneurial programmes were not within the system, it would be interesting to examine how these programmes assist design start-ups in different design disciplines. Since there are various design disciplines, such as fashion design and graphic design, the question remains: Which entrepreneurship programmes are suitable for them to participate in? Further, how do these programmes assist them to learn entrepreneurship?

There is a need for testing the current proposed conceptual framework in order to ascertain whether it is applicable and find out what improvements could be made; how design education facilitates design students and graduates to learn entrepreneurship (Findeli, 2001; Frascara, 2020; Meyer & Norman, 2020). The proposed formation of a new design start-ups community is suggested to be examined to facilitate the design entrepreneurs' entrepreneurial process.

Finally, future research could focus on longitudinal studies on design entrepreneurs' start-up business in the BI process to understand their difficulties and the challenges in daily operations. This may link to the literature of design economy theory and the capabilities of

success of a design firm (Heskett, 2009) and permit a better understanding of how these design start-ups create value and become successful design firms.

Other future research could focus on design education in entrepreneurship in different disciplines, as there are different design start-ups, teaching methodologies and pedagogies as well as the background of tutors, which may be an interesting area of study as has been suggested in the literature.

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APPENDIX A INTERVIEW PROTOCOL FOR INCUBATION MANAGER

An interview guide for incubation manager is provided as below:

Before conducting the interview, the interviewer will ask the incubation manager about the general information of the incubation programmes, such as how many design start-ups are included in their programmes, the number of applications for the programmes, the measurement of the incubatee's performance, etc.

1. What are the objectives of your incubation programme?
2. What is the policy of incubator?
3. What are your job duties and nature?
4. How do you help incubatees to become successful as start-ups or align with the incubator's objectives?
5. How do you assess the incubatees when they apply for this programme?
6. How do you help them to maintain their businesses to be sustainable during and after the incubation?
7. Describe your relationship with the incubatees?
8. How do you help the incubatees to learn entrepreneurship?
9. Do you think design incubatees and non-design incubatees are different in terms of business nature and the service or support the incubator provided? If yes, how do you help them to establish their businesses to be a successful and sustainable business?

APPENDIX B INTERVIEW PROTOCOL FOR DESIGN INCUBATEES

An interview guide for design incubatees is as follows:

1. Tell me about your background and why do you want to apply to this programme?
2. Did you apply any funding or other incubation programmes? What do you think about their qualities? Do they provide sufficient services and facilities that you need?
3. How the incubators help your business in terms of business networking, mentoring, connections with external partners, investment?
4. What do you think about the financing of your business? Do you think it is difficult to handle or easy to learn? Did you have any education or knowledge background on accounting or business formation before joining the incubation programme?
5. How did you learn entrepreneurship or start your business? Do you find the training that incubators provide is useful or meet your needs? What did you learn and which subjects do you want to learn?
6. What do you think about their services in marketing or networking? Do you think they help you to extend your market?
7. What is your business status now? Are there any business aspects which you find it difficult?
8. Did you know how formulate a business plan before you applied for this programme? How did you learn how to make a business plan and do you think it is important? Are there any areas in which the incubator should improve?
9. Did you learn any entrepreneurial skills you have learnt in the institution or university before you start your business? Did they help? Are there any entrepreneurial skills you want to learn? Why?
10. If you were about to apply for the incubation programme, would you still apply for it? If so then why?

APPENDIX C SUMMARY OF ALL BUSINESS INCUBATORS IN HONG KONG

(Source: adapted by the author)

Type of BI	Name of Programme	Organisation	Funding Amount	Target participant	Industries focus	Need Business Plan?	Need to be registered before apply?	Duration
Government-based	Cyberport Creative Micro Fund-Cross-Border Programmes	Cyberport	HKD100,000	Between the age of 18 and 30, graduated within 3 years from a registered post-secondary education institution	Digital tech related	YES	YES	6 months
	Cyberport Creative Micro Fund-HK Programme	Cyberport	HKD100,000	18 years old above	Digital Tech related	YES	No	6 months
	Cyberport Incubation Programme	Cyberport	Up to HKD 500,000	Company registered less than 7 years	Digital Tech related product/service solutions	YES	YES	2 years
	Technology Incubation Programmes	Hong Kong Science and Technology Parks (HKSTP)	HKD180,000	Not more than 2 years	Information and Communication Technology, Electronics, Chinese or Herbal Medicine, Web-based, smartphone-based, internet, games, etc.	YES	YES	3 years
	StartmeupHK	Invest HK	Networking	Provide information about the start-up ecosystem in	All Companies	No	No	No

				HK, networking, events				
	Social Innovation and Entrepreneurship Development Fund	Hong Kong Government	Depends on the start-up	Not specific	Social Entrepreneurship	YES	YES	Not specific
	SME Development Fund	Hong Kong Government	HKD 5,000,000 Max.	All non-profit SME companies	Not specific		YES	Not specific
Non-Profit Organisation	Jockey Club Community Art Centre	Non-Profit Organisation	Only studio	All artists	Art-based	YES	YES	Depends on the performance
	PMQ	Non-Profit Organisation	Only studio	designers	Design Studio and Retail shop	YES	YES	N/A
	Alibaba Entrepreneurs Fund (JumpStarter)	Alibaba	Depends on the Incubator	Accelerator	Big Data, Cleantech, e-commerce, education, fintech, healthcare, internet of things, logistics, media & Entertainment, software and security	YES	YES	Not specific
	Smart-Space at Cyberport	Cyberport	Co-working space area	One of the founders should be within the age of 18-35	Digital technology related	YES	YES, application form	One month or flexible period up to 12 months
	Cyberport University Partnership Programme	Cyberport	HKD100,000	18-30 years old, currently enrolled or graduated students within 3 years	Fintech focused	YES	YES	
	Hong Kong Business Angel Network	Hong Kong Science and Technology Parks	Provide angel investment network activities	All companies	Not specific	YES	YES	Not applicable

	Youth Business Hong Kong	The Hong Kong Federation of Youth Groups	Up to 150,000 loan	18-35 years old, company registered not more than 3 years	Not Specific	YES	YES	Not specific
	Jockey Club Social Innovation Centre	The Hong Kong Federation of Youth Groups	Co-working space		Social innovation by the use of technology	YES	YES, Application form	Not Specific
	Fashion Incubation Programme	Hong Kong Design Centre	HKD730,000	Fashion design	Fashion Design	Yes	YES	2 years
Private-based	FedEx Accelerator	FedEx	Various supports and services	Project-based	Data visibility and customer experience	YES	YES	8 weeks
	Accelerate ME	American Express	Various supports and services	Project Based	Any companies	YES	YES	6 weeks
	Next Chapter	Next Chapter Crowdfunding	Services, including mentorship	Crowdfunding-Women entrepreneur	Women entrepreneur	YES	YES	Not specific
	Indiegogo	Crowdfunding platform	Services, including mentorship	Crowdfunding network	All companies in worldwide	YES	YES	A limited time period
	Brinc Accelerator	Brinc Accelerator	Services up to USD 500,000	Accelerator	Internet on Things (IoT), Robotics & Food Technology	YES	YES	Twice a year
	The Mills Fabrica	Nan Fung Development Limited	From USD 100K to 2 Million	Platform Network, Incubator	Fashion, Textile and technology	YES	YES	Not specific
	Metta	Metta	Services, Co-working space	Incubator services, networking	All companies	YES, application form	YES, application form	Not specific
	TiE Global Entrepreneur	Silicon Valley	Community	Incubator services, networking, community	All companies	No	No	Not specific

	ABLAZE	New Media Group	HJD500,000 media exposure		Related to travel, eat and Dine, Teens, Fashion/lifestyle, Beauty/women, parenting	YES	YES	6 months
	Betatron	Betatron	USD 70,000	One founder is expected to be based in HK	Not specific	Yes	YES	4 months
	CoCoon Incubation	Cocoon	Services	Co-working space	Not Specific	YES	YES	Not specific
	Entrepreneur First	EF management limited	HKD450,000 and 30,000 stipend	London, Singapore, Berlin, Paris, HK and Bangalore	Technology focused	Yes	YES	Not specific
	Kaleidoscope Lab	The HK and Shanghai Hotel	Services and training	Mature innovative global startups	Technology in luxury hotel	Yes	Yes	12-week programme
	Lime HK	LimeHK	Accelerator	Services	Not Specific	YES	YES	Within 3 to 6-month
	SOW Asia	Sow Asia	Accelerator	Services	Social Enterprises	YES	YES	5-month
	The Cage	The Lane Crawford Joyce Group	HKD 50,000	Fashion and lifestyle retail technology	Two winning early stage startups developing technologies that apply to fashion and lifestyle retail.	YES	YES	12-week
	The Stile Initiative	Stan Group	HKD100,000		Not specific	YES	YES	4-month
	Zeroth	Zeroth	Accelerator, Services	Pre-seed, Seed stage	Artificial intelligence	YES	YES	3-month
	Fo Tan Open Studio	Private	Only studio	Not specific	Art-Based	No	YES	N/A
Private-based with non-profit organisation	AI Lab	Alibaba, SenseTime, HKSTP	USD 100,000	Accelerator	AI start-up	YES	YES	6 month
	Sprinter	HKSTP, etc.	Accelerator	Training and Fundraising	Innovation and technology	Yes	YES	2=year

					ecosystem, technology			
Private-based with non-profit organisation and university-based	Supercharger	Standard Chartered Bank, etc.	Accelerator	Fintech companies	Fintech companies	YES	YES	Not specific
University-based	Student Entrepreneurial Proof-of-Concept Funding Scheme	The Hong Kong Polytechnic University	HKD30,000	Full-time undergraduate students	All, not specific	YES	No	Not Specific
	Micro Fund	The Hong Kong Polytechnic University (HKPpolyU)	HKD 120,000	At least one student/alumni of the university as the principal applicant	All commercial ideas with social/industrial impact	YES	No	1 year
	Inno-Hub	The Hong Kong Polytechnic University	Free	University alumni, students	All	Yes	Yes	1 year
	CUHK PI Centre	Chinese University of Hong Kong		Services	Not specific	No	NO	One year
	HKBU Entrepreneurship Boot camp	Hong Kong Baptist University (HKBU)		Full-Time students from all universities	Not Specific	YES, should complete an online course	NO	4-day
	HKU DreamCatchers seed programme	Hong Kong University	HKD100,000, Co-working space, services	Full-time or part-time or graduate who is aged 35 or below, company not registered	Not specific	YES	YES	6-month membership

				more than 3 years				
	Entrepreneurial Knowledge Transfer Fund	Lingnan University	HKD20,000 per project	One full-time Lingnan student as project leader and one full-time academic member as an adviser	Not specific	YES	No	Less than 24 months
	Student Early Entrepreneurship Development Scheme (SEEDS)	City University of Hong Kong (CityU)	HKD 200,000	Undergraduate students from the university	New products/services and new intellectual property	YES	No	12-16 months
	Technology start-up support scheme for universities (TSSSU)	City University of Hong Kong	HKD1,200,000	Undergraduate or postgraduate/ alumni who graduated in 2 years	Technology-based	YES	No	3 years
	CityUE Investment Fund	City University of Hong Kong	Up to 2,500,000	All current undergraduate or postgraduate student or full-time academic staff, alumni who have graduated not more than 8 years	Not specific	YES	YES	5 years
University-based with government-based	Hong Kong Techathon 2019	HKPolyU, etc.	Prize: HKD 13,500; Seed fund up to HKD 350,000	University students	Education/Social Technology, Fintech, Medical/Healthcare Technology, Smart City	Yes	No	1 year

University-based with Mainland Government	China Entrepreneurship Fund	The Hong Kong Polytechnic University (HKPpolyU)	RMB 200,000	Any full-time and part-time students and alumni not graduated more than 8 years from the university or local students graduated from other countries	All, Not specific	YES	No	1 year

APPENDIX D CONSENT FORM

INFORMATION TO PARTICIPANTS

You are invited to participate

You are recognized as Design/Innovation entrepreneur and accordingly, are invited to participate in this project entitled "Business Incubation for Designers in Hong Kong".

Project explanation

Part of the aim of this study is to collect the feedback from design academic professionals about entrepreneurship in design education. The research will be helped the government, the organization, the universities to develop and enhance the entrepreneurial programmes in the future.

What will I be asked to do?

Participants are asked to respond to a set of semi-structured questions that will be presented by the principal researcher in face-to-face conversations. Each participant will be able to share their individual views and opinions and speak freely on the topic. The project facilitator will provide a detailed summary of each conversation after the interview. Participants will then have the opportunity to expand on their comments or adjust previously offered responses to each question. Additional information regarding the survey process and useful background content related to the survey topic, are extended in the Study invitation. Depending on the individual and their enthusiasm to delve into this unique opportunity to share views and thoughts, the estimated time commitment for each interview is approx. 1 – 1 1⁄2 hour.

What will I gain from participating?

Interview participants will gain valuable insights relating to the project topic; the aggregation of the study respondents will include information which they too value and to which they would not otherwise have access to. Each participant completing this interview, will be issued a summary report on the overall findings of this project. Additionally, the project leadership team is hopeful that the insights will provide impetus for business-related initiatives that otherwise would not have been possible to envisage.

How will the information I give be used

The information being collected and analysed will contribute toward a Doctoral thesis. Data collected from this study will be stored in a secure place, only accessible by the researcher. The information you provide will be kept confidential at all times; the raw data collected will remain confidential at all times. Analysis of the survey may be used in academic publications; however, no participants will ever be named in these publications.

What are the potential risks of participating in this project?

There are no expected risks from participating in this study. Your participation in this study is on a voluntary basis and you may opt to discontinue your participation during the interview at any time, without effecting you directly or indirectly whatsoever.

How will this project be conducted?

This project will be conducted face-to-face at the participants' office, or an alternative location. The Project facilitator will provide time guidelines for each interview. This is to ensure that the interview can be conducted over a reasonable timeframe, without too great an interruption to everyone's busy schedules.

Who is conducting the study?

This project phase is being conducted by Ms. Fong Wai Man, Tiffany, PhD Candidate at School of Design, The Hong Kong Polytechnic University

Any queries about your participation in this project may be directed to the Project facilitator listed above

If you have any queries or complaints about the way you have been treated, you may contact the School of Design Departmental Research Committee Chair, at The Hong Kong Polytechnic University, Hung Hom, Kowloon, or via phone +852 2766 5111.

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

CONSENT TO PARTICIPATE IN RESEARCH

Business Incubation for Design Start-ups in Hong Kong

I _____ hereby consent to participate in the captioned research conducted by Tiffany Fong.

I understand that information obtained from this research may be used in future research and published. However, my right to privacy will be retained, i.e. my personal details will not be revealed.

The procedure as set out in the attached information sheet has been fully explained. I understand the benefit and risks involved. My participation in the project is voluntary.

I acknowledge that I have the right to question any part of the procedure and can withdraw at any time without penalty of any kind.

Name of participant _____

Signature of participant _____

Name of researcher Tiffany W.M. FONG

Signature of researcher

Date 22 March, 2019

Hung Hom Kowloon Hong Kong 香港 九龍 紅磡
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APPENDIX E SAMPLE TRANSCRIPT FROM AN INCUBATEE IN CASE B

Date of Interview: 15 Dec, 2020 Duration: 45 minutes

I = Interviewee R = Researcher

1	[0:00:00] R: would you tell me your background and why did you apply for this programme?
2	I: [0:00:09] ok…um…so...my education background, I have been graduated in communication design, so…um... visual photography design, fashion styling, I did that in Italy, um...and it's one of the courses for graphic design, so they teach us basic of elements of design, basic of ....design theories. Then you can go to the specialization, I went to more communication design which is ..um...and because I was full studying in design in fashion school, a lot of my design is fashion design, so…um… that's was four years. Then I worked a lot in the brand, in an advertising agency, as designers, art direction. And then eventually realize that I want to do more with design. Then I want to do design to impact people, or make a better product or services, um...so I decided to...come to PolyU, because they have a programme called design practices, and that basically allows you to work with the actual company, and with business models, and do research, do lots of strategies work, and that I was very interested in.
3	R: What is the year of your graduation?
4	I: [0:01:43] is in 2013-14.
5	R: [0:01:46] Do you mean you came to HKPolyU in 2014 to study Master Degree in Design Practices?
6	I: [0:01:50] Yes.
7	R: after that, in 2015, you graduated and applied for Micro fund?
8	I: [0:02:00] Yes.
9	R: [0:02:02] Why did you apply for this programme?
10	I: [0:02:06] Um...so....um...I actually worked on my thesis and dissertation, part of my graduation in Master. I realize that I have something that I fashioned about. I want to do forward, about social impact product, so, I was talking to a lot of friends, alumni, professors. One of the professors recommended that I applied for Micro fund because they focus on social innovation and technology, and social innovation impact about, and I decided to start my business.
11	R: [0:02:51] did you search for another funding programmes before you applied for this programme?
12	I: [0:02:52] no. not yet, this is the first thing I applied to.
13	R: [0:03:01] What did you expect before you applied for this programme?
14	I: [0:03:11] um...what did I expect was um…definitely. Money and fund to help the product forward, but I was also looking for lots of business knowledge because I never have a business. One of the submission for the micro fund is a business plan, so I have to google what is a business plan, how to make it, I was so lost in the business. How to go about profit and loss statement, so... I really need and really want to happen that aspect, and that's why I decided it.
15	R: [0:03:57] in your study in Master degree, did they teach you how to do business?
16	I: [0:04:02] Yes, they did. Um…they did very basic what a profitable business should have, in terms what the customers are, what is the product of things, what is the value of the proposition. Still, in terms of the actual business plan which you go to, you know the official goal the report and case study, that we didn't learn.
17	R: [0:04:26] Did they have a module like in design business?
18	I: [0:04:31] Yes.it was two modules, one was about business models, innovation, and the other module were about...the value proposition.
19	R: [0:04:50] Is it also specifically for designers?
20	I: [0:04:57] it is specific for designers, this is design school module that I learnt, but again, both of them are very human focus, very user focus, not to teach you how to start your own business.

21	R: [0:05:13] do you mean they were more focus on how to meet your client's needs?
22	I: [0:05:23] Yes,
23	R: [0:05:25] But you want to know more about running a business or daily business?
24	I: [0:05:33] Yes... during my master degree, I did learn that I was delighted to learn about the users, and customers, but when I applied for the micro fund, I realize that I have missing lots of knowledge about how to start up my business, so... I think through the Micro fund that's was meet my expectation that I want to get that.
25	R: [0:05:53] so do you mean you want to apply for this programme?
26	I: [0:06:00] Yes.
27	R: When you are preparing your business plan, how did you do?
28	I: [0:06:07] Speaking lots of people, a lot of my friends are lawyers, and they are working in the start-up as well, I have been speak to lots of them, that may help, google help a lot. Haha...um....and I think right now, there are so many resources online, so you can just learn it very quickly, I had to go and teach myself how to write a business plan, and I think...ya...
29	R: [0:06:37] What did you think about their office, did they provide you with an office?
30	I: [0:06:46] so they did give me an office only I think six months into the programme because after six month, This I believe we were in the 3rd and 2nd round, um…and so then we start the space at Micro fund centre, we got the 4th floor, in the school of design, in InnoHub, it is only started in 2015 or 2016.
31	R: [0:07:20] So at that time, you had space?
32	I: [0:07:26] Yes, at that time, I had space, but before that, I used to work from home, um...I used to work in lots of cafes, ya...I used to work from my school because I went to school and I have access to.
33	R: [0:07:37] What about the location and the facilities or the centre?
34	I: [0:07:43] Ya…I think it was very great because they gave us a locker, so when we started, we have one locker. We have free seating, we have a whole floor space that you have that you can use those of the areas, um...so I worked in one of the rooms, at that time, there are only 4 of our start-ups, there was no one else there because some of the start-ups had already their own space or they have funding from other incubation programmes also, they would all sitting in a different place, but I think me and five of other people who worked in the room, it was really nice and quiet.
35	R: [0:08:27] Did you use other facilities within the school that they provided?
36	I: [0:08:34] um...do you mean the Canteen?
37	R: [0:08:38] Or equipment? do you need any other tools or equipment or labs?
38	I: [0:08:48] Ya... we didn't have any access to any of that....because I was in the design school, um...I would want to use the printer and my access card couldn't work, because they don't give you access card, um...so the one I was using I have expired, because I was alumni, um...and they don't give you any access card.
39	R: [0:09:20] How did you find the equipment to use if you want to use?
40	I: [0:09:26] So... it is a good question, I used to do outside because they give you the fund, you can reimburse the bill of printing, for the photocopies.
41	R: [0:09:38] Is it reimbursement? or they gave you the money?
42	I: [0:09:42] um...they gave you the money, but then you have the collect the receipts. Ya...um...I couldn't use any of the facilities.
43	R: [0:09:54] Are there any centres that they provided you can use their facilities or equipment?
44	I: [0:10:07] No... I don't think so.. because in 2016, maybe they changed.
45	R: [0:10:11] So, at that time, they don't have?
46	I: [0:10:16] No.
47	R: [0:10:16] so.... what do you think about the funding? Did they give you the budget?
48	I: [0:10:24] So...how it works ... I thought it worked well because it is in the instalment plan, they don't give all the money in one goes, it's quite centred, it keeps track our progress, and take it seriously, so I think that work really well... I had a lot of problems at the beginning, in 3-4 months, I couldn't get any of

	the funding, because I didn't have any business account. It is tough for me to start a bank account in HK. Um...because what happened that in 2015, they recently change a lot of supporting start-ups on small entrepreneurs, I thought there were lots of fail cases in the past years, so the banks became very strict about who gave them access to the bank account to...so...I went from the standard chartered, Hang Seng bank, HSBC, Citibank...I went to so many banks...and all of the requirement, the minimum is HKD50,000 balance every month. So...the criteria they are given is for very successful start-ups, not for the new business, like me. Finally, I went to a bank in East Asia, um...they helped me. Bank of East Asia, so...there was only HKD10,000 minimum balance every month, um... and the deposit is HKD10,000. I had HKD10,000 from my own money that I had to put it and then said I ok and then they open it. So, that's was take a long time.
49	R: [0:12:20] Before you apply for this programme, did they require you to have a business registration first?
50	I: [0:12:28] Business registration .....um...I had already, but I don't have a company bank account.
51	R: [0:12:40] What do you think about they have 3 instalments, 3 separate of the money, do you think this process is good?
52	I: [0:12:57] I think it is suitable...um... it's really have to split out the instalment, I do wish that they have a rule that you have to spend all of the money to get the next instalment, um...so, after 3 months, I haven't finished the instalment yet.. so they said they can't give us the next instalment to use that money, and so what I used to is spend a lot of money, it was required, I could have easy to seek that money.
53	R: [0:13:47] So… you need to use the 1st instalment. after that, you can't...
54	I: [0:13:55] No...it was very frustrating, they keep following up with me, I thought ok. After 3 months if I cannot use the money, I can go another 3 months. Still, actually, they keep forcing to use that money, because I think they don't want us to go more than 1 year period, they want to keep the Micro fund awardees in one timeline...if not...one person uses the fund, you know...2 more years...so it was a big and I because my start-up is tiny....and I am not able to use the funding, so I was spending the ridiculous, stupid things that just use all the fund. So was quite...that was quite difficult for me...
55	R: [0:14:46] At the end, did you use all the funding?
56	I: [0:14:51] um... in the end, I didn't get HKD10,000 because I think we all agree that business was making lots of money. Just this time, I rethink about I want to go about the....um…the start-ups...and became more of...a non-profit almost instead of an enterprise. So...um...the last amount of money I all kept it to me. because micro fund is HKD120,000, so they split it to HKD30,000, HKD30,000 and HKD40,000. I didn't get the HKD10,000, I didn't get the last HKD10,000.
57	R: [0:16:16] Are they have any milestones?
58	I: [0:16:21] Ya…they always um.. used to get the milestones form to us... at the beginning of each month, and then after the instalment, they will call us in the office and used to talk to them, and then tell them about the progress they helped us around with it as well, give us advice, because really they want to do well.. so it was good feedback.
59	R: [0:16:53] So they encourage you to find clients? Did they invite you to join some networking, find investors? Did they introduce you to some of the external partners?
60	I: [0:17:14] um...no.....they didn't...they gave good ideas and things of that...but I think because maybe my start-up was very different, it was to do with more Human Resources in business...um....they didn't connect me with anyone, I was doing on my own.
61	R: [0:17:35] At that time, did they have any networking or seminars that you could connect with other people?
62	I: [0:17:45] ya...they had seminars, so we had workshops on...um…marketing and social media, we had a seminar on...doing pitching for other....incubators...um.....ya...they had some different conferences...they didn't have lots of networking parties, not much…
63	R: [0:18:12] What do you think about the networking they provided or seminars, do you think that they helped you to learn in business or grow your business?
64	I: [0:18:25] um...they actually did, I agree, because I think what I learnt in my time with Micro fund was everything from Public relation. During promotion, marketing, design, financing are all done by myself that I think that was quite helpful, I do wish that they have given more one on one support because each

	start-up was very different, I run a social impact start-up, there was someone else who was in AI start-ups, and we would have various means of investors, other means from finance, seminars, so I wish they would create and customized, rather than you know all of the awardees in one consultant.
65	R: [0:19:20] Do you mean you suggest to separate into different design discipline?
66	I: [0:19:25] Ya, Social innovation, social impact, AI, maybe you know, technology, people do different other business, should separate.
67	R: [0:19:39] How do you learn finance, accounting, is it complicated to understand about this as a designer?
68	I: [0:19:54] Yes, definitely.
69	R: [0:19:56] How do you learn finance?
70	I: [0:20:03] They gave us a template which was very helpful, um...it helps you to keep track your expenses, um...after each of instalment, we had a meeting, the one will see the excel sheet, um...and basically it shows where you spent all the money. that was my first only ...introduction, accounting.
71	R: [0:20:37] So, in the meeting, they sent you these documents so that you can learn from it?
72	I: [0:20:49] Yes,
73	R: [0:20:51] Did they have any seminars or training so that you can learn from it?
74	I: [0:20:58] No..
75	R: [0:20:59] Did you join other outside seminar or you learnt it by yourself?
76	I: [0:21:07] I didn't know that I should in learning so much about it, um.....so I didn't go other places to learn, but now I look back it, I wish I have...this is the summary of the finance. So this is what it looks like, this is the template they gave you. You got the reference, how much you spent.. (photos).. it was in instalments had to give given this file.....
77	R: [0:22:27] Do you think that it is crucial?
78	I: [0:22:32] Yes...very important.
79	R: [0:22:35] Did you learn it from bachelor's degree or master's degree?
80	I: [0:22:40] no...I will always be as a designer, I never learn accounting, um.....and I wish I really learn ahead.
81	R: [0:22:48] So you find it very important for a designer to learn business?
82	I: [0:22:54] Yes, even they are not starting their business, even they are working as a designer, um… I think it is to spend time to know the basic accounting, expenses... ya.
83	R: [0:23:05] After you fill in this form and you learnt it from a website?
84	I: [0:23:14] Yes.... and my boyfriend taught me a lot of this accounting, I have a friend to teach me how to do the budgeting, how to keep expenses, otherwise I may be get lost...
85	R: [0:23:32] So, you learnt it from your friends?
86	I: [0:23:37] Yes.
87	R: How many staffs do you have at the beginning of your company?
88	I: [0:23:45] From the beginning, I have no one, the peak of my start-up, I had 3 people in total.
89	R: [0:23:52] 3 of them are full time?
90	I: [0:23:54] part-time.
91	R: Can you use your funding to hire them?
92	I: [0:24:06] Yes, i can use.
93	R: [0:24:07] Can you use your funding, is there any limitation in using the funding?
94	I: [0:24:12] cannot use it for rent, ya...
95	R: [0:24:17] For the salary of part-time, you can hire them?
96	I: [0:24:23] Yes. and you cannot pay for yourself. Hahaha.
97	R: [0:24:26] if you apply reimbursement, you have to show them receipts, is it flexible for this procedure?
98	I: [0:24:44] No...for hiring staff..nothing.. I show them my bank summary.
99	R: [0:24:59] Do you need to give them proof?

100	I: [0:25:02] Yes.. you have to give the receipt for everything...
101	R: [0:25:18] After you gave them everything , the receipt , if they don't have any questions, they approve it?
102	I: [0:25:30] Yes... for example. my social media marketing,
103	R: [0:25:35] You just give them the invoice and form?
104	I: [0:25:39] Yes.
105	R: [0:25:42] so you find it quite easy?
106	I: [0:25:43] yes..very easy. at least it is not a problem for me.
107	R: [0:25:49] What is the most difficulties when you start your business?
108	I: [0:26:02] um.I think it is about getting clients...I think a start-up usually to take 3 years to build the foundation and then get the clients or get the business, um...so I wish that they would give you the training for the 6 months, so set up the start-ups, and then...um....and then get business, so I had to do all of them fit together in one year, which is so hard, because you know, Making a website, gain the domain, offering a bank account, plus trying to get business, so hard.
109	R: [0:26:48] At that time, before you got this funding, did they have any training or activities for you to join?
110	I: [0:27:07] No... maybe they changed now.
111	R: [0:27:19] Do you mean you want to suggest them to have longer funding?
112	I: [0:27:27] 2 years, definitely, or 1 year is enough, if it fits the CV is to be a start-up, they already pass the acquisition merges.
113	R: [0:27:38] which part of the funding, the money you used the most? Branding, marketing, hiring people, office equipment, etc.?
114	I: [0:27:53] um.....I think definitely hiring the talent for the start-ups, ya...um.....salary for people...
115	R: Is it because it is difficult to find full-time staff?
116	I: no... I think we have to do everything alone, so to understand that if I need people who are expert in the marketing, um..I need an expert this and that, so I hire…you know… two people, one was doing marketing social media for me, one is for doing business. So...I think for that....money is mean it definitely.
117	R: [0:28:48] At that time, do you need to save a certain amount of money before you start your business?
118	I: [0:29:02] No...do you mean do I have any seed money?
119	R: [0:29:05] yes.
120	I: No....not at all...I actually didn't think I would be starting a business.
121	R: [0:29:13] How do you sustain your living expenses?
122	I: I used to work as freelance work, as a part-time designer, I used to work as a part-time advertising studio. Basically, I have some money, which that because of my brand, and then rest of the time the funding I got from the Micro fund, I have put it into my start-ups.
123	R: [0:29:44] So you still have living expenses?
124	I: [0:29:49] Yes...haha...
125	R: [0:29:51] What is your business status now? After that, you rent this office?
126	I: [0:30:02] After that in 2016, um.....ya... I came here. So...in 2017, my funding is all over, because I start-up from 2016 to 2017, and I joined a company as full-time staff in 2017.
127	R: [0:30:25] Is it a co-working space?
128	I: [0:30:29] Is a design lab for a company
129	R: This is a company?
130	I: [0:30:38] This is a different company, not my start-ups.
131	R: [0:30:44] As a full-time staff?
132	I: [0:30:47] yes.
133	R: [0:30:48] How’s your start-ups now?

134	I: My company is now on the side, part-time...we can actually right now working on it. ..haha...getting back ....in the evening... but I worked as full time.
135	R: [0:31:15] This place is for design lab?
136	I: [0:31:21] This lab belongs to a company.
137	R: [0:31:26] But this place is for full-time designers?
138	I: [0:31:34] yes.
139	R: are you working here?
140	I: [0:31:34] Yes. haha...
141	R: [0:31:38] Why did you switch to part-time?
142	I: [0:31:43] because at the funding, many reasons... the funding from the Micro fund got over, um....second, I still do not have a client, a paying customer for the service, because it's just one year for starting up a business, um....and the third I had to pay rent, I had to start thinking my future as well. Especially in Hong Kong, It was very hard. um.....do not have a good salary in...so then I decided that I needed to find a full-time job.
143	R: [0:32:28] Do you think after one year, your business is growing or not?
144	I: [0:32:31] yes. 100%... I was at the point, I was speaking to relevant people, I had the networking of...HR, social impact people, relatively to my business. Um..and this is at the end of one-year funding, so I really wish that I had another year of funding to then just call and continue my business.
145	R: [0:33:00] so, you find the clients by yourself?
146	I: [0:33:06] Yes..
147	R: [0:33:07] or the micro fund helps you to find your clients?
148	I: [0:33:12] No...all by myself, I sent email to a lot of people, met a lot of people for coffee, um.....there is a lot of networking of myself, I talked to myself to do it.
149	R: [0:33:26] Do you think that the incubator helps you to achieve your goal or expectation?
150	I: [0:33:37] They definitely did help me learnt a lot...um.....whether they helped me to reach my expectations, I am not sure, but the programme itself was beneficial, just like another incubation programme I think. I think it depends on what you want in the incubation programme, you have to decide for yourself, why you are in this programme.
151	R: [0:34:07] Did you apply for other funding after graduating the Micro fund?
152	I: [0:34:09] um.....I did…the one problem was that lots of fund in HK, they are more focusing the tech start-ups. My product is not tech-related, so I found that micro fund has one field...um....incubator programme for non-tech, this one and also the good seed. I think good seed fund, they would be quite helpful…..
153	R: [0:34:52] How do you define your company? Product design or communication design?
154	I: [0:35:00] My company? is ..more...um.....I would say it was learning development for the company, so ...do training on gender diversity, so gender quality, sexual harassment, would be workshops that I organized.
155	R: [0:35:32] This is the communication design?
156	I: [0:35:38] It is more HR, training, learning development. Yup...
157	R: [0:35:50] Is it also related to design?
158	I: [0:35:53] Yes.. the product I did in design, was using design thinking, um...to do the training.
159	R: [0:36:08] What is your future plan?
160	I: [0:36:11] ok...I was thinking about, because it is new year's, in the new year, I want to get back because I am really passionate about the subject, you know that was inclusion, gender quality, women empowerment, I am very passionate about that, um...so I have been working on..making my start-ups much more...um...B to C, than B to B., so I want to develop each customer so that they can use the training for themselves because going to the company was very hard, they take a long time to… you know... speak the start-ups in Hong Kong, it takes a long time to sign a contract to give me money, so I

	really want to that to see the market, so i have been re-designing my product, to see how someone let me more can use our product.
161	R: [0:37:14] Are you continue to run your full time start-up?
162	I: [0:37:22] Part-time, definitely part-time, because I think Hong Kong is a place that is very difficult to run a start-up if I have no saving if I do not come from original background, haha... it's very very hard..to sustain myself, so I think, for now, I am happy keeping part-time, and I believe it goes well, then I will switch to full time, but right now, I can't afford of it.
163	R: [0:37:52] Because of living expenses?
164	I: [0:37:54] yes, because of living expenses is too much, ya... that's very, very hard.
165	R: [0:37:57] Will you consider to re-start your business again?
166	I: [0:38:02] yes..of course i would ..definitely, um....
167	R: [0:38:07] Did you plan or think about it.
168	I: [0:38:11] No...I haven't thought about it...I think the nature of my product is such that applicable people to any community, anyone in the world, that's was always a company to do training for them, employees, um...so...I don't understand your questions.
169	R: Do you have any plan to apply for funding now?
170	I: [0:38:37] ya..I planned to apply the funding right now...new world development, is called G for Good. They are looking for start-ups to incubate, I would contact them to see this year.
171	R: Do you have any suggestions for this programme, design start-ups and design students?
172	I: yes...for the programme...um.....suggestions would be to...separate the start-ups for different stages, do have a different programmes for each base of start-ups.
173	R: [0:39:35] Do you mean different training, seminars or mentor for different...
174	I: [0:39:38] Just for the programme.
175	R: [0:39:39] Did you use the mentor service they provided?
176	I: [0:39:44] they didn't start the mentor programme, they were I think only our first six months, they started the mentor programme, I still figure out as well...because it was very new. But I would say .like for me, I am very basic start-up, so I wish that I expected the other basic start-ups to coach us some seminars, for design start-ups, because are very different, would someone have been existing for 3 years, and ...but different...
177	R: [0:40:18] any other suggestions for the programme?
178	I: [0:40:22] um.....suggestions.....um....would be helping in building business, like getting customers, um.....ya...because I feel like PolyU is a good reputation institutions, themselves, they would be right customers for me if few....um...they could have facilitated our start-up... business collaboration.
179	R: [0:40:52] For designers who want to start their business, any suggestions?
180	I: [0:40:59] I would say…um.....try to do everything by yourself, it really teaches us a lot. I think designers are good because we all think about users in our design. After all, we think about how to make something better for people, how to improve someone's life, we had that, but I think the business side is essential. Um.....because ya..right now... I believe the skills that we have will longer be relevant, in the few years if we cannot use the business acumen, it is bullshit, you know.
181	R: [0:41:41] For the design students.
182	I: [0:41:44] um,..I would say for design students, use the time in the school, to..really dig deep into the problem, or issue one...because at that time they get the research, from the people, talk to people users of it, visit other institutions, so I think the research elements, the students are very important because once they get out, as a student, they don't have time to apply the new things, apply to the research.
183	R: [0:42:30] Do they need to learn design business?
184	I: [0:42:35] um.....I think they should... that's why the master's programme so important, are you talking about master degree?
185	R: [0:42:44] degree or master
186	I: [0:42:46] For degree...um.....for degree...I am not so sure if it is important...because, through their working experience, they learnt a lot, um...for master design student, 100%... yes. Business sense and

	business value. How to work with clients, how to work with customers, how to make money on their design.
187	R: [0:43:11] Do you suggest they need to go for working as a full-time job first? Or they can apply for the micro fund to start their business after graduation?
188	I: [0:43:28] I would always say work experience really matter.
189	R: [0:43:35] But you started your business after graduation.
190	I: [0:43:40] but I have 5 years working experience after my graduation, and then Master. So the master programme that in the design school is good because they required us to have 3-4 years of work experience. After all, small business-related, they don't admit the undergraduate or already graduated to apply for Master, the average age was maybe 35 years old already.
191	R: [0:44:07] Do you think the master degree programme should teach you something you want to learn from the business?
192	I: [0:44:18] They didn't, I really like my master degree programme.
193	R: [0:44:24] Do you think they need to add some module, about business accounting?
194	I: [0:44:32] No…I don't think so... I think they cover a perfect part of the lesson which is about customers, clients. They have social interaction to them, and research, the whole package, if they started to teach finance...or very technical business for designers, I think...um... it's not time used well...they can use that time to build our design skills, to develop our business acumen in worldwide perspectives. Still, very traditional...um…that we can have another class, from other class, particular separate class, maybe elective because I think not everyone would like to learn about that.
195	R: [0:45:37] Thank you.

APPENDIX F SELECTED SITE VISIT PHOTOS – DIP – WONG CHUK HANG CENTRE

(Photo 1 – 4)- (Source: photos taken by the author from Oct to Dec 2019)

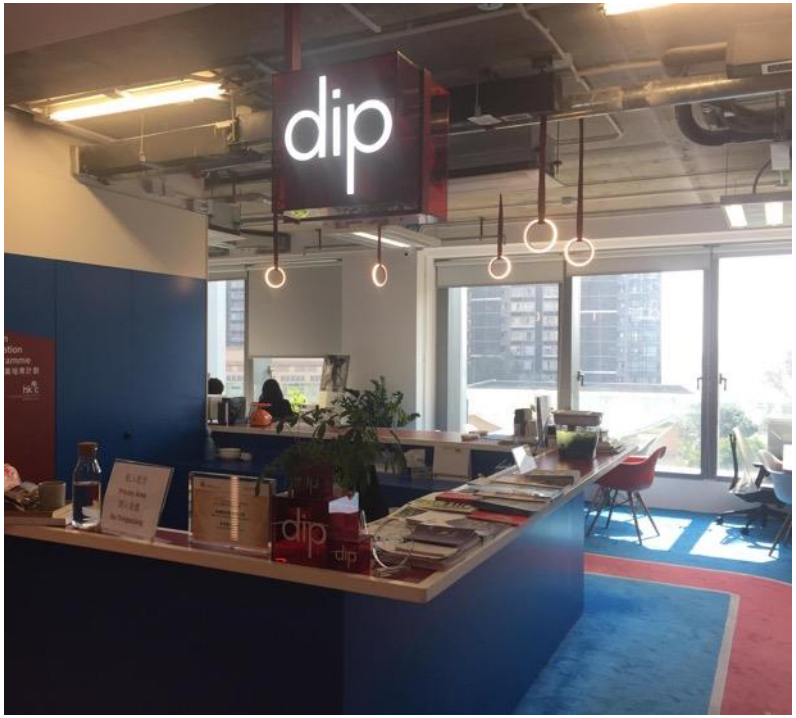


Photo 1: Incubation Centre at Wong Chuk Hang Centre – Reception counter	Photo 2: Incubatees' office

Appendix F (continued)

Photo 3: Incubation Centre -Corridor

Photo 4: Incubation Centre – Co-working space and common area

APPENDIX G SELECTED SITE VISIT PHOTOS – DIP – KOWLOON BAY CENTRE

(Photo 5 – 6)- Source: photos taken by the author from Oct to Dec 2019)

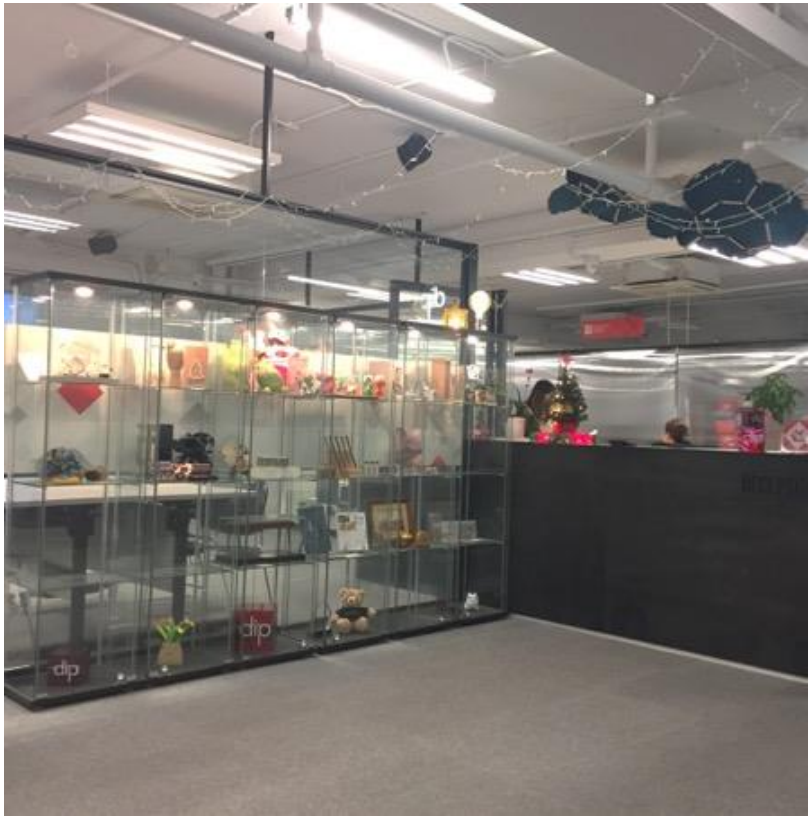
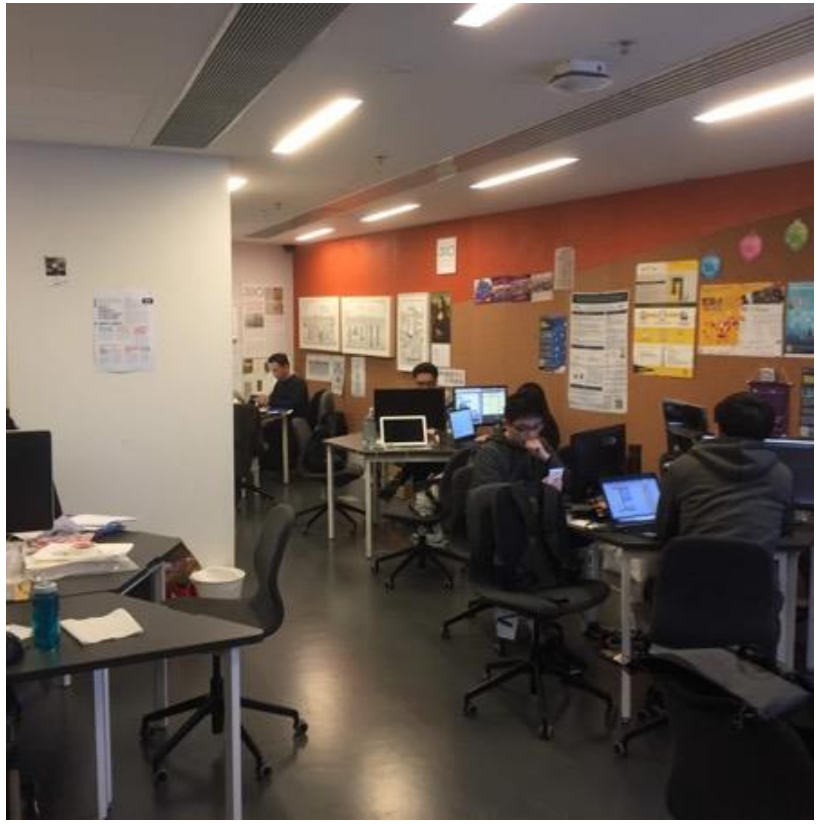


Photo 5: Incubation Centre at CITA – Kowloon Bay – Reception	Photo 6: Mailbox

APPENDIX H SELECTED SITE VISIT PHOTOS –MICROFUND- HKPOLYU INNOHUB CENTRE

(Photo 7 – 14)-Source: photos taken by the author from July to Aug, 2019)

	
Photo 7: Incubation Centre at HKPolyU, InnoHub	Photo 8: Incubatees' co-working space

Appendix H (continued)

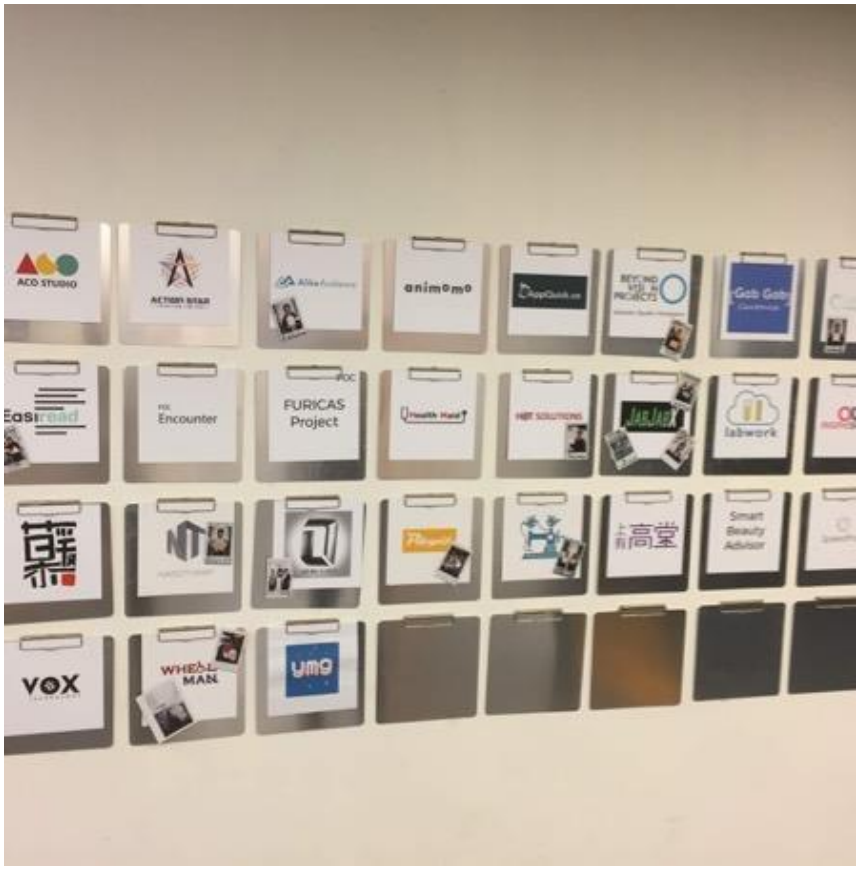


Photo 9: Incubation Centre Mailbox

Photo 10: Incubation Centre – Information board

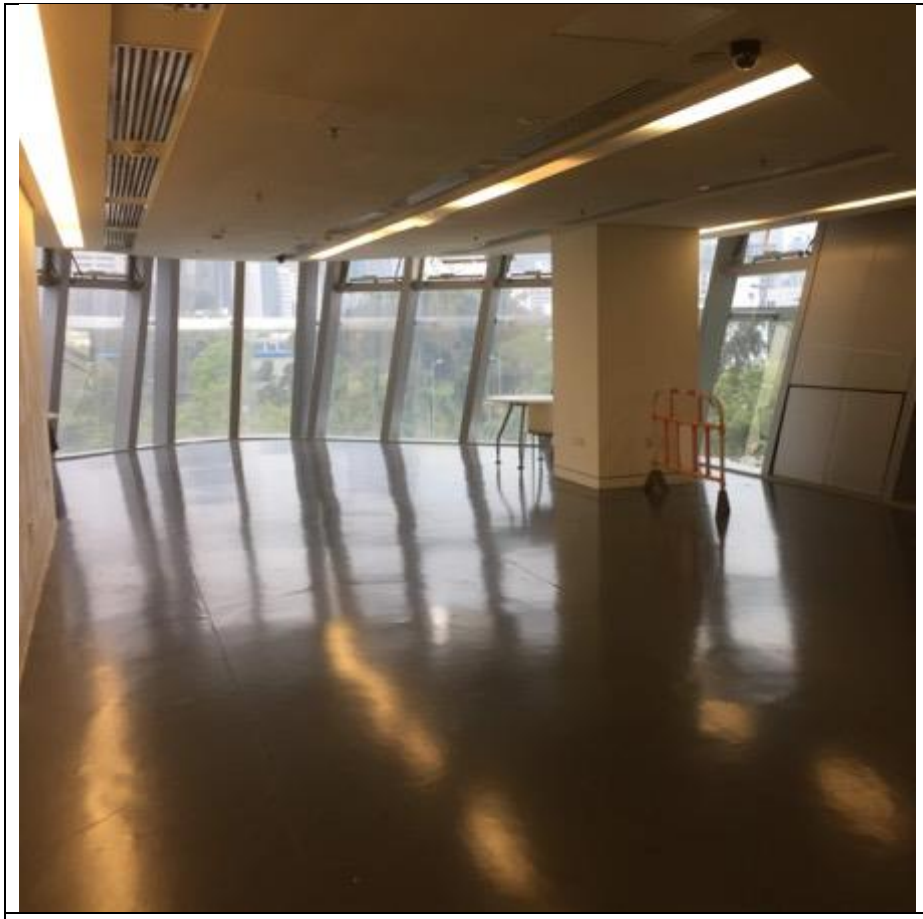


Photo 11: Exhibition area at HKPolyU, InnoHub

Photo 12: Meeting room at InnoHub

Appendix H (continued)

Photo 13: Exhibition area at HKPolyU, InnoHub

Photo 14: Pantry at InnoHub