
**INVESTIGATION OF THE KEY SUCCESS FACTORS OF VENTURES INCUBATED
AT IBA CED INCUBATION CENTER: AN EMPIRICAL STUDY**

Shahid Qureshi¹
*Abdullah Mustafa^{*2}*
Mohammad Talha³
Azad Ahmed⁴
Misbah Amin⁵

Abstract: *University based Incubation centers promotes entrepreneurship across the globe by facilitating the student startups. The Pakistani universities have also followed this and are establishing incubation centers. However many incubation centers are not able to deliver the required results. This study investigates the incubation model of the IBA Center for entrepreneurial development (CED) and highlights its unique features. The IBA incubation program is unique, as it emphasizes on the development of the entrepreneurial mindset and an understanding of the effectuation theory before pursuing an entrepreneurial journey. This paper describes the IBA incubation fellowship model and its practical application on new startups. The paper analyses the companies who were incubated and identifies the key success factors of these firms. A total of 10 interviews were conducted from the selected incubatees, using multiple case study design. This paper adds to the literature on incubation in Pakistan. The result reveals that incubation centers facilitate the incubatees and help them in leveraging their resources, and networks. IBA CED work environment, entrepreneurial training, and the effectual approach to start a business are found to be the key success factors. The potential challenges faced by these incubatees include: lack of resources, lack of technical skills/ skilled employees and lack of advanced technology. The Government of Pakistan is recommended to invest in the incubation centers and facilitate them by providing them trainings based on international standards.*

Keywords: University Incubation centers, Incubation Fellowship Model, Entrepreneurial mindset, Effectuation

¹Author is Associate Professor & Program Director in Center for Entrepreneurial Development (CED) at Institute of Business Administration (IBA) Karachi

^{2*}Corresponding Author is Manager Outreach Activities in Center for Entrepreneurial Development (CED) at Institute of Business Administration (IBA) Karachi, E. Mail: amustafa@iba.edu.pk

³Author is Manager Incubation in Center for Entrepreneurial Development (CED) at Institute of Business Administration (IBA) Karachi

⁴Author is Manager in Center for Entrepreneurial Development (CED) at Institute of Business Administration (IBA) Karachi

⁵ Author is Researcher & Case Writer in Center for Entrepreneurial Development (CED) at Institute of Business Administration (IBA) Karachi

Introduction

Being a relatively new field, research on entrepreneurship has shown an impressive growth in recent times (Quinn & Woodruff, 2019; Nguyen et al., 2021). Entrepreneurial challenges and success factors are being investigated throughout the world (Hormiga, Santos & Sarango-lalangui, 2018). These research activities help in developing literature for entrepreneurs and finding solutions of existing problems. With the advancements in entrepreneurship research, new models and approaches are emerging which are being used to overcome the various barriers to entrepreneurship (Ketchen, Combs, Ireland & Short, 2010).

Entrepreneurial development centers and incubation centers are emerging throughout the world, which are working to stimulate entrepreneurial mindset amongst the present and future generations (Secundo et al., 2020). Awareness towards entrepreneurship has seen an impressive growth in recent times and further giving rise to competition in the market (Castrogiovanni & Soriano, 2012; Fritsch & Wyrwich, 2018). These centers not only conduct training programs but also provide after training support to help entrepreneurs, survive in a competitive market (Castrogiovanni & Soriano, 2012; Fritsch & Wyrwich, 2018). Counseling, channelized marketing and network creation are essential in turning a startup into a successful venture (Gustafsson, & Herstedt, 2019; Sandararajan, Peters & Rice, 2004). To provide these services under a single roof, Incubators were brought into the picture.

Incubation is a distinctive business support model that has an inbuilt capacity to

incorporate valuable interventions for creation and development of enterprise (Eshun, 2009). The idea of incubation has gained popularity world-wide in terms of its efficiency in providing encouraging environment for fostering and supporting small and medium enterprises. An incubator provides physical working space, shared office facilities, information, counseling, access to finance, training and professional services to stimulate growth of SMEs (Sudana et al., 2019; Aladejebi & Oladimeji, 2020). In 2017-18, only university linked business incubators were recorded with \$3.2 billion plus revenue and \$4.2 billion plus investments worldwide (Ubi-global, 2018). Currently, more than ten thousand incubators are working across the globe (Bruneel et al., 2012).

Y Combinator is a USA based business incubator, currently leading the charts. It has facilitated in the success of Dropbox, AirBnb, Reddit and Weebly (Abayo, 2020). Founded in 2005, it has invested in over, fifteen hundred startups having an overall worth of \$80 billion (Wallenius, 2018). Likewise, Microsoft Innovation Center (MIC) has accommodated tech entrepreneurs. It is working worldwide and providing state of the art services to boost tech based startups (Chichernea, 2008). Along with the collaboration of Punjab Information Technology Board, Microsoft Innovation Center has brought Incubation Services in Lahore, Pakistan (Laila et al., 2020; Jahangir, & Shah, 2016). To accelerate the software development ventures, MIC is providing training, access to development tools, customer support and worldwide visibility through online startup directory (Wallenius, 2018).

Entrepreneurship is still a developing field in Pakistan (Muhammad, McElwee & Dana, 2017; Giné, & Mansuri, 2014). A lot has to be done to help the potential entrepreneurs. Various Entrepreneurial Development Centers are working in Pakistan to understand those hurdles better and create opportunities to overcome them (Laila et al., 2020; Jahangir, & Shah, 2016). Business incubation is a key instrument in government's strategy to expedite women entrepreneurship development in Pakistan (Ali, & Darko, 2015). A study was carried out to scale the significance of incubation services for women entrepreneurs in Pakistan (Shahzad et al., 2012). Thirty-four incubation services were incorporated in the study and tenants from women specific incubator participated. According to the results, all tenants perceived incubation services to be very important for the success of their businesses (Shahzad et al., 2012). In the development of small and medium enterprises, incubation plays a vital role, however perceived importance and perceived effectiveness reflects a significant difference (Carayannis & Von Zedtwitz, 2005). Tenants appear to be satisfied by the facilities provided by incubation services but their expectations seemed to be higher. Incubation services in Pakistan are in many cases delivering up to the mark facilities yet tenants expect them to be more efficient (Shahzad et al., 2012).

Center of Entrepreneurial Development (CED) situated at Institute of Business Administration, Karachi has been working in this space for many years (Qureshi & Mian, 2020). From seminars to certifications, IBA CED is offering multiple training programs to boost entrepreneurial mindset in Pakistan. IBA

CED is also providing business Incubation facility for the residents of Karachi. There are three types of incubation spaces available at IBA CED i.e. Business Hatchery, Business Incubation and Virtual Incubation. The effectual reasoning demonstrates that future is unpredictable and effectual entrepreneurs focus on the means and resources they have (Sarasvathy, 2009). There are five principles of effectuation including; bird in hand, affordable loss, crazy quilt, pilot in the plane and lemonade. An effectual entrepreneur is action oriented and believes that things happen by chance while they explore different ideas. IBA CED applies the effectual learning's while training / coaching and mentoring their incubatees.

This research investigates the impact of incubation facility on the startups at IBA CED and highlights the key success factors leading to a sustainable venture through the incubation process. The purpose of the research is to shed light on the impact of incubation on success of startups. IBA CED provides three different types of Incubation, this research analyzes how different types of incubation play their part in the development of startups. It further investigates the challenges faced by the incubated firms in the market and how IBA CED helps them to overcome those challenges.

Theoretical Model

IBA-CED offers the IBA Incubation Fellowship Program (IIFP) to the aspiring entrepreneurs of Pakistan (Qureshi & Mian, 2020). The fellowship program has been designed to provide all the basic and advance facilities to the participants like, training, mentoring, fund raising and

incubation(Qureshi & Mian, 2020). The training part of the program works on the entrepreneurial mindset of participants and with the help of principles of effectuation, allows them to think innovatively and creatively (Qureshi & Mian, 2020).In addition marketing, accounting and key understanding of business law is inculcated in participants throughout the training. In the mentoring module of IIFP, CED gives an environment for participant to create a network for their startups. Ranging from one-to-one counseling sessions to workshops with industry professionals, CED faculty helps them in idea refinement, making a minimum viable product, marketing, people management and finance.

Although CED promotes effectual entrepreneurship but fund raising stays a critical aspect for entrepreneurs at IBA CED (Qureshi & Mian, 2020). As entrepreneurs face many challenges in getting access to finances, CED connects participants to their panel of investors, which is helpful for startups to get a jump start. Last but not the least, Incubation module of IIFP is the most important amongst all modules. IBA CED provide its participants facilities and an environment where startups can flourish and grow rapidly (Qureshi & Mian, 2020). It provides all the basic operational and administrative facilities to its incubatees.

Therefore, the study contributes to the existing literature by bringing evidence from the IBA CED incubation center. The paper is based on the application of theory of effectuation by Sarasvathy (2001) i.e., its five principles namely: bird in hand, affordable loss, crazy quilt, lemonade and pilot in the plane. The

success factors and challenges faced by the incubatees are discussed in detail. The use of effectuation in startup companies in incubation centers has found to be a critical success factor. The study contributes to the existing literature by bringing evidence in this perspective.

Business Hatchery

Hatchery is a shared office space for new startups having one to three employees (Allen & Rahman, 1985). At the early stages of startup, Business hatchery provides combine office space. In a hall, multiple startups are incorporated and they're enabled to use more than one desk, as per their requirement. A desk is accommodated with a table and chair, Wi-Fi and uninterrupted power supply. The idea behind Business hatchery is to provide core prerequisites to entrepreneurs starting their ventures from scratch. Being at same level of operations, Business Hatchery enables entrepreneurs to learn different things from each other. The startups are provided intervention in management, fund-raising, marketing and they are linked with industry professionals of their business genre. As start-up grows and strengthens its roots, it is offered with bigger and private office, Business Incubator.

Business Incubator

For startups having more than four employees, Business incubator is suitable as it comprises of private and relatively larger office space (Lukeš, Longo, & Zouhar, 2019). Business Incubators provide soft, technical and physical assistance to potentially emerging startups

Table 1 IBA Incubation Fellowship Program (IIFP) (Source: IBA CED Incubation Center)

Incubation	Training	Mentoring & Networking	Fundraising
<p>Office Space</p> <ul style="list-style-type: none"> ▪ Incubation Space ▪ Office Table ▪ Chairs ▪ Lockers ▪ Activity Board ▪ Meeting room ▪ Prayer Area ▪ Cafeteria <p>Administrative Support</p> <ul style="list-style-type: none"> ▪ Air conditioning ▪ Wi-Fi Service ▪ Uninterrupted Electricity supply ▪ Room cleaning service ▪ Drinking water ▪ Facility of Oven ▪ Opportunity to hire Interns - Security 	<ul style="list-style-type: none"> ▪ Entrepreneurial Mindset ▪ Innovation & Creativity ▪ Design Thinking ▪ Business Modelling ▪ Entrepreneurial Marketing ▪ Entrepreneurial Accounting & Finance ▪ Business Law for Startups ▪ Growth Strategy for Startups 	<ul style="list-style-type: none"> ▪ Seminar ▪ Workshop ▪ Conference ▪ Symposium ▪ Talk session ▪ EIR Program ▪ In-House Startup Meetups ▪ One-to-One Mentoring Sessions ▪ IBA and CED Visitors ▪ Social Media Platforms 	<ul style="list-style-type: none"> • Seed Money <ul style="list-style-type: none"> ▪ Ihsan Trust ▪ Gear Trust ▪ Akhuwat • Angel Investors • Startup Competitions

(Lukeš, Longo, & Zouhar, 2019; Bruneel et al., 2012). The soft assistance comprises of fund-raising campaigns and capacity building workshops and seminars. Technical assistance is incorporated with mentoring and consultancy which are tailored to the requirements of the venture (Bruneel et al., 2012). Physical assistance consists of furniture, room and IP phone. Technical and Soft assistance are on-demand services (Bruneel et al., 2012). IBA business incubators are specifically designed for startups, who have laid solid base of their venture but still need incubation services at an elevated level

(Ali, B., & Darko, 2015). Incubators are also suitable for small enterprises which are not progressing and need assistance to look for growth opportunities.

CED Accelerator Program (CEDAP)

The core ideology of CED Accelerator Program is to provide an environment to entrepreneurial ventures which helps them to flourish and foster the economy of Pakistan on a bigger scale (Qureshi & Mian, 2020). The program aims to facilitate startups with necessary mentoring by successful entrepreneurs or IBA faculty, seed funding,

infrastructure and access to IBA’s network to help them grow faster(Qureshi & Mian, 2020).To strengthen the entrepreneurial abilities of young entrepreneurs, CEDAP provides them community and educational support which increase the chances of success in their future and current ventures. With the collaborative efforts of CEDAP ecosystem consisting of mentors, leaders and invited guests, CEDAP inspires its participants to make meaningful progress in their ventures. CEDAP ecosystem engages its participant in such a way that it helps them to become more confident, knowledgeable and experienced entrepreneur.

Virtual Incubator

For the startups, who don’t have a need of physical space, IBA provides them virtual incubators (Qureshi & Mian, 2020). All the

operational facilities, technical and soft assistance is provided to them to enable their growth. The incubates have access to various trainings and networking sessions at the center.

Research Methodology

To analyze the key success factors of incubated firms a qualitative research method was designed. Semi-structured research questionnaire was prepared, targeting the impact of incubation, motivational factors and hindrances faced by incubated firms. From the 68 incubated firms, 10 firms were selected based on convenience sampling. Primary and secondary methods of data collection were used. Participants were asked to fill a consent form and selected incubated firms were, interviewed in person and the interviews were recorded.

Table 2 Research Methodology

Research Method	Qualitative
Research Questionnaire	Semi-Structured
Sample Size	10
Sampling Technique	Convenience Sampling
Data Collection Method	Interview
Research Design	Multiple case design approach

Research Design

A multiple case design approach is selected in this study. This approach allows the researcher to select 3 to 10 cases and present an analysis (Gustafsson, 2017). It allows collection of in-depth information from the participants. A total of ten case studies are selected for this paper. This design does may or may not

require the useof statistical tools. Alternatively, it allows the researcher to investigate, compare and amylase-interesting findings related to the research question. The interviews collected in this study, using this approach, helped in understanding the success factors of the startup firms as they incubate at IBA CED.

Interview Protocols

This study collected primary interviews and interview protocols are mentioned below:

- Study focus on understanding the challenges and success factors for incubates resident in Karachi and the benefits they gain while working at the incubation center. Based on this, an interview is conducted from the incubatees.
- A qualitative open ended questionnaire is used to collect the data from 10 incubatees.
- Incubatees were asked to participate in the interviews, voluntarily. They were engaged based on their consent.
- A face to face interview was carried out with the incubatees and a semi-structured questionnaire was provided to them.
- The interviews were recorded in the form of hand-written notes. Transcription of notes is an easy method of transcription and saves time.
- After the collection of interviews, interviewees were acknowledged for their voluntary information.
- They were informed that their information will be kept confidential and used solely for the purpose of this research.

Sample Size

The current study reveals about the perceptions and experiences of IBA CED incubatees. Out of total 68 incubated firms, a sample of 10 incubatees is selected based on researcher's convenience. Sim et al., (2018) claims that samples of 10 interviews are enough for a qualitative research investigation, as long as they answer the selected themes under investigation. Likewise, Campbell, &

Ahrens, (1998) argues that multiple case study involves as minimum as 3 to as maximum as 22 case studies. The authors argue that increasing the number of cases, increases the validity of the study, In the light of Campbell, & Ahrens, (1998) and Sim et al., (2018), current study selects a sample size of 10 and collect qualitative interviews through convenient sampling technique.

Results and Discussion

To determine the impact of incubation and role of IBA Incubation fellowship program in nurturing startups, 10 incubated firms were interviewed. Results of interviews were thematically analyzed and different aspects were induced from the analysis. Amongst the participating startups, the minimum numbers of employees were 3 and the maximum numbers of employees were 36.

Business hatchery to Business Incubation

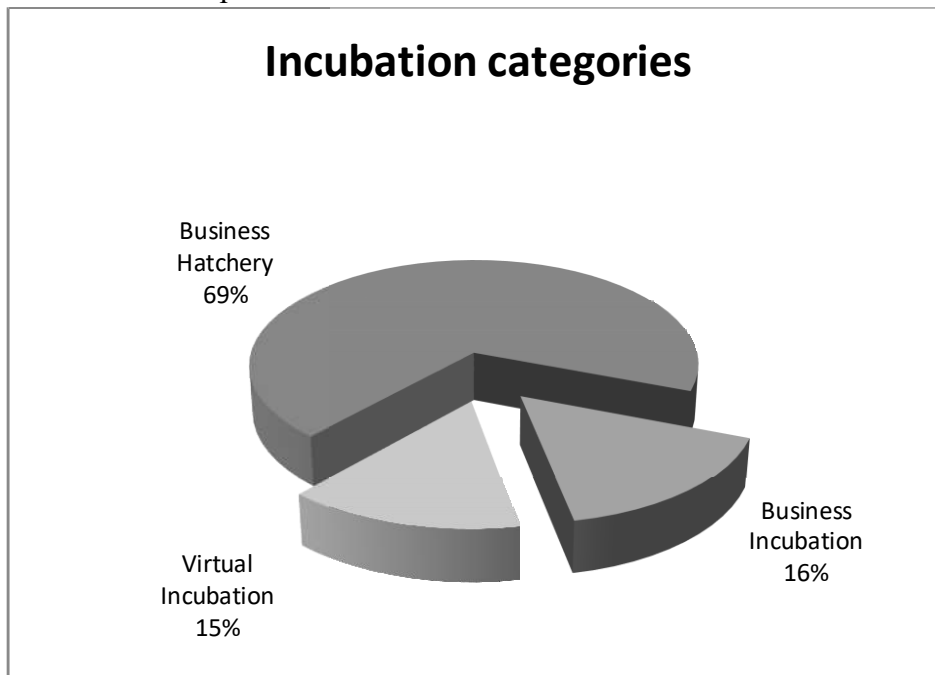
A noticeable trend was seen in the results that all the incubated firms were first enrolled in Business Hatchery. Business Hatchery is a shared office space which includes greater than one startup working together in a single hall (Harper-Anderson, E., & Lewis, 2018). Business Hatchery is preferable for ventures starting from scratch. The idea behind Business Hatchery is that it helps startups grow rapidly. It helps in establishing in-house network and also sharing of ideas, which contributes in nurturing of firm. Most of the participants were of the opinion that Business Hatchery helped grow individually and collectively both. One of the participants quoted,

“Working in a space surrounded with people with so much enthusiasm and motivation of

creating their own identity motivated me to be more dedicated.”

In the year 2018-19, a total of sixty-eight startups are working in IBA CED. Out of those sixty-eight, forty-eight are in business hatchery, eleven are in business incubation and 10 are in virtual incubation. The soul reason for business hatchery accommodating 69% percent of all the startups in IBA CED is that

business hatchery is a shared office space. More than two startups are accommodated in a hall, where they are allocated desks as per their requirement. Business hatchery is usually suitable for ventures starting from scratch and has two to three employees. The graph below reveals about the incubation categories at IBA Center for Entrepreneurial Development (CED):



Key success & challenging factors for startups

Pakistan has started to contribute in successful startups in recent years (Khan, 2020; Khan et al., 2019; Iftikhar, & Ahmad, 2020). A rise in entrepreneurship in the past few years has been witnessed throughout the country. With an increase in entrepreneurial training and awareness, i.e. business plan competitions and entrepreneurial events many innovative ideas have started to come on the front. From the result of interviews, the key success factor for startups was accounted to be dedication and the entrepreneurial mindset.

Every business venture undergoes a period of hardships and different challenges arise for every startup (Khan, 2020; Khan et al., 2019; Iftikhar, & Ahmad, 2020). One of the most cited challenge is the access to finance and resources (Khan, 2020; Khan et al., 2019; Iftikhar, & Ahmad, 2020). For most of the entrepreneurs in Pakistan, resources are always insufficient and they have to seek for outsourcing of resources (Shahzad et al., 2012). Entrepreneurs have many responsibilities of their venture; they have to deal with almost everything themselves

(Qureshi & Mian, 2020). Effectual entrepreneurship can help them kick start with the least amount of resources. A thorough understanding of the concept of bird in hand has helped the entrepreneurs during the startup phase.

According to Sarasvathy (2009), every individual can identify some means from within his bird and hand and take an action based on one's affordable loss. One of the participants quoted,

"It couldn't have been possible for me to manage so many things if I wouldn't have been familiar with my potential, entrepreneurial training helped me, recognize my abilities and provided me knowledge of things I'll have to deal with."

Another noticeable challenge is the lack of technical skills. A lot money is needed for setting up the business i.e. office space, IT equipment and access to internet, parking and access to kitchen etc. Most of the participants were of the opinion that Pakistan is lacking behind in terms of technology and its training. One of the participants said,

"We have to deal clients from abroad and to provide them up to the mark services we have to train our employees crucially; it takes a lot of time and energy."

The incubation fellowship program provides incubation space. The quality of the infrastructure and the IBA brand helps the incubatees to attract good quality team members with the relevant technical skills. The IT facilities and the room décor helped

many incubatees to contact global customers. Many global customers were amazed to see the company in a high-end facility and this boosted their confidence in sourcing work to these new startups.

Sami Ul Ahabab, CEO of one of the incubated company said,

"As a part of the marketing strategy, I used to upload the pictures of my team working in the State-of-Art office at the IBA. This caught the attention of an International Client, Simone and she was very impressed by this working environment. Moreover, we got a project from Simone which was successful completed which led us to get further international clients. This helped in developing good reputation of our company. In this chain reaction, the social media pages got thousands of fan following. The Aman-CED's Incubator played a pivotal role in our Social Media Marketing Strategy."

He further states that,

"The IBA CED Incubator helps new business enterprises and startups in growing their businesses by providing them the required trainings and state-of-art offices. I got a market-edge of having office in the State-of-Art building. I benefited a lot by daily uploading the pictures of my office on different social media platforms like Facebook and LinkedIn. This strategy hit many CEOs of different million-dollar companies and I was able to get International clients".

Use of Effectual Entrepreneurship as a key success factor

From all the analyzed themes in the results of interview, entrepreneurial mindset and the theory of effectuation seem to play an important role in the success of startups. Participants regardless of their prior entrepreneurial training were referring to the bird in hand principle. All the participants started their venture from their given means and resources. Participants mentioned that they had very less capital when they started. Participants repeatedly mentioned that how the principle of “*Crazy-Quilt*” as explained by Saravathy (2009) helped them, reaching out for resources and entering market and developing collaborations and partnerships. Most of the participants started their work on the basis of partnerships and outsourcing work and that helped them to become autonomous. Principle of “*Bird in hand*” was repeatedly mentioned to be very effective for participants. The participants stated that this principle helped them to use their means to start their venture and it helped them to build a network for their business as well. The table - 3 (see Appendix) describes details of some of the selected successful ventures incubated in the IBA CED incubation center.

Discussion

In the entrepreneurship journey, theory of effectuation outlines the approach of making decisions and carries out actions (Saravathy, 2009). The basic interpretable concept of effectuation is pilot in the plane which means that an entrepreneur influences all the outcomes through his actions (Saravathy, 2009).

The theory of effectuation basically imparts that the process of entrepreneurship begins with three types of means, who I am, what I

know and whom I know (Lassen and Nielsen, 2012). Entrepreneurs working with effectual mindset basically don't set goals, instead they look for means from which they can create a marketable product (Saravathy & Read, 2005).

Center of Entrepreneurial (CED) development at IBA, Karachi has infused the theory of effectuation in their programs and has been working to create awareness about effectual mindset in entrepreneurship in Pakistan. The core ideology that CED is working upon is that how to establish an enterprise with the least amount of capital. People from across the Pakistan enroll in Entrepreneurial development programs conducted by CED and through interactive training. The participants are helped to discover their entrepreneurial mindset and taught the various principles of effectuation. Through skill stimulating activities, CED helps them to recognize their potential traits and undermined means, on which they can work upon and create an economic good. Programs at CED are designed on the principles of effectuation and within the course of program, most of the participants become aware about their bird in hand.

As the participants come up with ideas and start refining their ideas and minimum viable products, CED provides them incubation services. Incubation services at CED are designed to work side by side with principles of effectuation. Incubated firms at CED are advised to invest as low as they can take risk of and keep in mind the affordable losses. Incubation at CED provides the environment to all the incubated firms to establish a network and learn from other startups present

at CED. In the counseling sessions incubated firms are advised that how they can use limited resources to run their businesses. Sticking to their ideology, CED at IBA promotes effectual entrepreneurship.

According to Nienhuis (2010), causation and effectuation approaches have different impact in building of an enterprise. Means based entrepreneurships are significantly more successful than goals based entrepreneurship. Also, approach towards partnership leads these startup increasing productivity rather than competition. In previous researches, it has seen that limited knowledge exchange takes place amongst incubated firms, but IBA CED aims to provide network resources to stimulate exchange of knowledge between incubated firms.

Conclusion and Recommendations

The IBA Incubation model is idiosyncratic as it follows the effectual approach of entrepreneurship in training its incubatees. The effectuation approach helps them to identify resources within their bird in hand. These resources are easily accessible, are almost free and timely accessible. This model adds to the incubation literature in the Asian context.

IBA Incubation fellowship program has many implications for potential entrepreneurs in Pakistan. IIFP has been designed to prepare the local entrepreneurs to compete in National and International markets. The entrepreneurial mindset and the theory of effectuation taught in the program prepare the participants to refine and grow their business opportunities. Regardless of availability of capital, entrepreneurs manage to establish their enterprise and use their means to grow and expand their business. In contrast to causal

entrepreneurship, Effectual entrepreneurship has proved to be more successful in the Pakistani context. It allows the incubates to leverage their bird in hand newt work to start and grow their business venture. Challenges like, advance technology and lack of skilled employees can also be overcome using effectual approaches. The university administrators and faculty members are encouraged to start incubation centers based on the entrepreneurial mindset and effectual approach to promote entrepreneurship in their institutions. The Government of Pakistan is recommended to encourage the universities through the higher education commission to promote the effectuation approach of incubation.

The limitations of the study are the sample size. To make the learnings more generalizable, it is recommended to conduct a quantitative study and to conduct similar studies in other incubators. A comparative analysis can enhance our understanding of key success factors of incubation centers.

References

- Abayo, E. (2020). *Designing a Knowledge Management Prototype for WPI Innovation and Entrepreneurship Programs* (Doctoral dissertation, Worcester Polytechnic Institute).
- Aladejebi, O., & Oladimeji, J. A. (2020). Appraisal of Technology Incubation Centres in South West Nigeria. *Journal of Small Business and Entrepreneurship*, 8(1), 41-56.
- Albort-Morant, G., & Oghazi, P. (2016). How useful are incubators for new

- entrepreneurs?. *Journal of Business Research*, 69(6), 2125-2129.
- Ali, B., & Darko, E. (2015). Grants, incubators and innovation: a snapshot of social enterprise activity in Pakistan. *Overseas Development Institute*.
- Ali, B., & Darko, E. (2015). Grants, incubators and innovation: a snapshot of social enterprise activity in Pakistan. *Overseas Development Institute*.
- Allen, D. N., & Rahman, S. (1985). Small business incubators: a positive environment for entrepreneurship. *Journal of Small Business Management (pre-1986)*, 23(000003), 12.
- Bruneel, J., Ratinho, T., Clarysse, B., & Groen, A. (2012). The Evolution of Business Incubators: Comparing demand and supply of business incubation services across different incubator generations. *Technovation*, 32(2), 110-121.
- Bruneel, J., Ratinho, T., Clarysse, B., & Groen, A. (2012). The Evolution of Business Incubators: Comparing demand and supply of business incubation services across different incubator generations. *Technovation*, 32(2), 110-121.
- Campbell, R., & Ahrens, C. E. (1998). Innovative community services for rape victims: An application of multiple case study methodology. *American Journal of Community Psychology*, 26(4), 537-571.
- Chichernea, V. (2008). The Opening Of The First Microsoft Innovation Center In Romania Within The Romanian-American University. *Journal of Information Systems & Operations Management*, 2(1), 11-19.
- Eshun, J. P. (2009). Business incubation as strategy. *Business Strategy Series*.
- Fritsch, M., & Wyrwich, M. (2018). Regional knowledge, entrepreneurial culture, and innovative start-ups over time and space—an empirical investigation. *Small Business Economics*, 51(2), 337-353.
- Ghose, S. M., McElwee, G., & Durrah, O. (2019). Entrepreneurial success of cottage-based women entrepreneurs in Oman. *International Journal of Entrepreneurial Behavior & Research*.
- Giné, X., & Mansuri, G. (2016). Money or management? A field experiment on constraints to entrepreneurship in rural Pakistan.
- Gustafsson, D., & Herstedt, J. (2019). 'The future of innovative partnerships'-How can large global corporations and startups form successful collaborations?.
- Gustafsson, J. (2017). Single case studies vs. multiple case studies: A comparative study.
- Harper-Anderson, E., & Lewis, D. A. (2018). What makes business incubation work?

- Measuring the influence of incubator quality and regional capacity on incubator outcomes. *Economic Development Quarterly*, 32(1), 60-77.
- Iftikhar, M. N., & Ahmad, M. (2020). The Entrepreneur's Quest: A Qualitative Inquiry Into The Inspirations And Strategies For Startups In Pakistan. *Pakistan Economic And Social Review*, 58(1), 61-96.
- Jahangir, M. N., & Shah, A. A. (2016). Tracing ICT innovation ecosystem of pakistan. *Bahria University Journal of Information & Communication Technologies (BUJICT)*, 9(2).
- Jebb, A. T., Parrigon, S., & Woo, S. E. (2017). Exploratory data analysis as a foundation of inductive research. *Human Resource Management Review*, 27(2), 265-276.
- Khan, M. S. (2020). Women's entrepreneurship and social capital: Exploring the link between the domestic sphere and the marketplace in Pakistan. *Strategic Change*, 29(3), 375-387.
- Khan, S. Z., Yang, Q., Khan, N. U., & Waheed, A. (2019). Entrepreneurship posture and new venture performance in Pakistan. *Human Systems Management*, 38(1), 55-72.
- Laila, U., Sadiq, N., Mehmood, T., & Fiaz, M. F. (2020). E-Governance as a Roadmap to Good Governance: A Digital Punjab Perspective. *Journal of Accounting and Finance in Emerging Economies*, 6(3), 905-915.
- Lukeš, M., Longo, M. C., & Zouhar, J. (2019). Do business incubators really enhance entrepreneurial growth? Evidence from a large sample of innovative Italian start-ups. *Technovation*, 82, 25-34.
- Muhammad, N., McElwee, G., & Dana, L. P. (2017). Barriers to the development and progress of entrepreneurship in rural Pakistan. *International Journal of Entrepreneurial Behavior & Research*.
- Nguyen, M. H., Pham, T. H., Ho, M. T., Nguyen, H. T. T., & Vuong, Q. H. (2021). On the social and conceptual structure of the 50-year research landscape in entrepreneurial finance. *SN Business & Economics*, 1(1), 1-29.
- Nielsen, S. L., & Lassen, A. H. (2012). Identity in entrepreneurship effectuation theory: a supplementary framework. *International Entrepreneurship and Management Journal*, 8(3), 373-389.
- Nienhuis, M. D. (2010). *Effectuation and Causation: The Effect of Entrepreneurial Logic on Incubated Start-up Performance: The predictive value of effectuation in business plans* (Master's thesis, University of Twente).
- Peters, L., Rice, M., & Sundararajan, M. (2004). The role of incubators in the entrepreneurial process. *The Journal of Technology Transfer*, 29(1), 83-91.
- Quinn, S., & Woodruff, C. (2019). Experiments and Entrepreneurship in

- Developing Countries. *Annual Review of Economics*, 11, 225-248.
- Qureshi, S., & Mian, S. (2020). Transfer of entrepreneurship education best practices from business schools to engineering and technology institutions: evidence from Pakistan. *The Journal of Technology Transfer*, 1-27.
- Qureshi, S., & Mian, S. (2020). Transfer of entrepreneurship education best practices from business schools to engineering and technology institutions: evidence from Pakistan. *The Journal of Technology Transfer*, 1-27.
- Read, S., & Sarasvathy, S. D. (2005). Knowing what to do and doing what you know: Effectuation as a form of entrepreneurial expertise. *The Journal of Private Equity*, 9(1), 45-62.
- Santhi, N., & Kumar, S. R. (2011). Entrepreneurship challenges and opportunities in India. *Bonfring International Journal of Industrial Engineering and Management Science*, 1(Special Issue Inaugural Special Issue), 14-16.
- Sarango-Lalangui, P., Santos, J. L. S., & Hormiga, E. (2018). The development of sustainable entrepreneurship research field. *Sustainability*, 10(6), 2005.
- Sarasvathy, S. D. (2009). *Effectuation: Elements of entrepreneurial expertise*. Edward Elgar Publishing.
- Secundo, G., Mele, G., Sansone, G., & Paolucci, E. (2020). Entrepreneurship Education Centres in universities: Evidence and insights from Italian “contamination lab” cases. *International Journal of Entrepreneurial Behavior & Research*.
- Shahzad, K., Bajwa, S. U., Ali, Q., & Zia, S. (2012). Role of incubation in women entrepreneurship development in Pakistan. *Asian Journal of Business Management*, 4(2), 200-208.
- Short, J. C., Ketchen Jr, D. J., Combs, J. G., & Ireland, R. D. (2010). Research methods in entrepreneurship: Opportunities and challenges. *Organizational Research Methods*, 13(1), 6-15.
- Sim, J., Saunders, B., Waterfield, J., & Kingstone, T. (2018). Can sample size in qualitative research be determined a priori?. *International Journal of Social Research Methodology*, 21(5), 619-634.
- Soriano, D. R., & Castrogiovanni, G. J. (2012). The impact of education, experience and inner circle advisors on SME performance: insights from a study of public development centers. *Small Business Economics*, 38(3), 333-349
- Sudana, I. M., Apriyani, D., Suprpto, E., & Kamis, A. (2019). Business incubator training management model to increase graduate competency. *Benchmarking: An International Journal*.
- Ubi-global.com. (2018). The UBI world benchmark study 2017-18 of University-linked Business Incubators

and Accelerators. Retrieved from: Wallenius, J. (2018). Long-term impacts of startup accelerators.
<https://ubi-global.com/wbs1718/>

APPENDIX:

Appendix 1: Table3 describes details of some of the selected successful ventures incubated in the IBA CED incubation center

S.No	Success Story	Information about Incubatees
1	Love For Data (LFD)	<ul style="list-style-type: none"> • IBA Graduates Mr. Noman and Ms. Maira started from IBA CED in 2016 with 01 other partner. • Served Banking, Retail, Textile and many other sectors. • 40+ employees in 2 years. • Won multiple awards including Karandaaz Fintech, Disrupt Challenge.
2	Stallion Deliveries	<ul style="list-style-type: none"> • Ibrahim and Hassan IBA BBA Graduates started Stallion Deliveries in 2014 • Cash on Delivery Logistics solutions for E-commerce • The company was acquired by ARY groups for PKR 2.5 Million
3	Shandaarbuy.com	<ul style="list-style-type: none"> • Mr. Zaid Moosani IBA MBA Graduate started from IBA CED in 2015 • E-commerce venture, sells electronics & tech. products • One of the largest online electronic and tech. retailer in Pakistan
4	Technyx Systems	<ul style="list-style-type: none"> • Mr. Sami-ul-Ahbab IBA MS-CS Graduate started from IBA CED in Nov, 2015 with 2 members • Offer digital & technology services • 20 employees in 1.5 years • Clients across USA, UK and Middle East region
5	Stemmers	<ul style="list-style-type: none"> • Mr. Ahmed Paracha IBA MS-CS student started from IBA CED in Sept. 2014 • Leading young generation to become Scientists, Technologists, Engineers, Mathematicians, Managers, Artists and Programmers. • Guinness World record for longest line follower Robot 1.22 km
6	Indus Valley Labs	<ul style="list-style-type: none"> • Ms. Shumaila IBA MS-CS Graduate started from IBA CED in July, 2015 • Delivers web and mobile based applications • 16 employees in two years • Clients in 08 countries all over the world
7	Createch Solutions	<ul style="list-style-type: none"> • Mr. Ali and Mr. Mehmood IBA BBA Graduates started in 2014 • Software and IT solutions firm • Int'l Clients in 5 countries • Around 15 members in Team

8	Techno Sync Solutions	<ul style="list-style-type: none"> • Fawad Haider IBA BBA Graduate started in April, 2014 • Sells vending machines, Enterprise Automation and Communication Technology Solutions • Signed with IBL group, supplied 5000 machines • Around 10 members in Team
---	------------------------------	--

Appendix 2: Qualitative Questionnaire

S.NO	Questionnaire	Transcripts
Q1:	What is the name of your venture?	
Q2:	In which category, your startup falls in?	
Q3:	When did you enroll for incubation at IBA CED?	
Q4:	Which category of Incubation you are enrolled in? <ul style="list-style-type: none"> • Business hatchery • Business Incubator • Virtual Incubator 	
Q5:	Have you previously attended any entrepreneurial development program at IBA CED?	
Q6:	Among all the services provided by IBA CED, which of the services are more helpful for your start up?	
Q7:	When you joined IBA CED how many employees did you have in your company?	
Q8:	How many employees are currently working in your company?	
Q9:	To what extent IBA CED helped you establish your network and how? (Minimal, Moderate or Great)	
Q10:	How IBA CED helped you to raise finances for your startup?	
Q11:	To what extent principles of effectuation helped you in your startup? <p style="text-align: center;"> 1 2 3 4 5 Least ○ ○ ○ ○ ○ Great </p>	
Q12:	Where do you see your start up in next two years?	
Q13:	What are the key success factors for your firm?	
Q14:	How IBA CED Incubation did helped you in your start-up journey? Discuss the key success drivers of becoming part of an incubation center and utilizing its resources?	
Q15:	What are the challenges and hindrances faced by your startup? How did IBA CED incubation center help you in overcoming them?	
Q.16:	In your opinion, what are the roles of the incubation centers in	

	increasing the success of the start-ups? Share your experiences in this aspect.	
--	--	--