

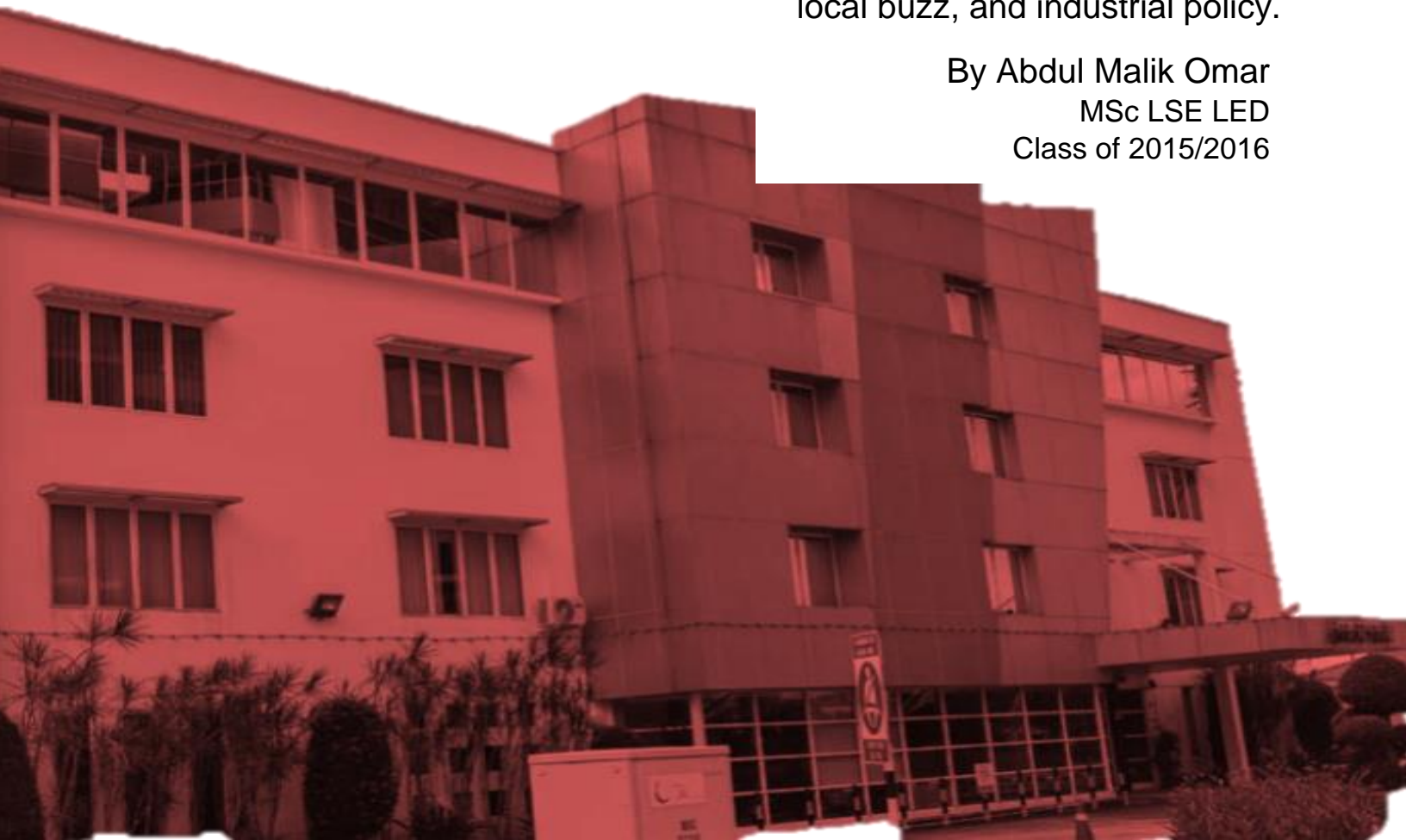


THE LONDON SCHOOL
OF ECONOMICS AND
POLITICAL SCIENCE ■

Innovation for Economic Development


Brunei's iCentre through the lens of global-local linkages,
local buzz, and industrial policy.

By Abdul Malik Omar
MSc LSE LED
Class of 2015/2016





LED LSE Class of 2015/2016. The author on the far right of the picture.



"It (iCentre) is a very special project, and it's for a very special group of people — our own men and women with great ideas and lots of courage who want to prove themselves in the business world,"

His Royal Highness Prince Mohamed Bolkiah, the Minister of Foreign Affairs and Trade (Brunei Times, 2008)



Personal Message from the Author

In this dissertation, I looked at how iCentre plays a role in contributing to the development of the startup, innovation and entrepreneurship culture in the country. I choose iCentre as a case study mainly because it was one of the few places that I could call “home”. The late nights I spent in the center during my Sixth Form years to study entrepreneurship (and get access to high-speed Wi-Fi!), as well as meeting so many inspiring people during 2009-2013 BEDB-iCentre era were simply unforgettable.

When Brunei experienced the oil crash in 2013, several measures were carried out that alarmed me of the prospect that the government may soon shut down the center forever. The first measure carried out was the drastic change of management, from BEDB (and KR Consulting) to a new organization called DARE. Next, was the halting of financing to the center and, hence, to the entrepreneurs there, many of whom were dependent on grants. Consequently, this triggered a mass migration of entrepreneurs and management out of the iCentre. The situation did not look good, to say the least.

So, when I was tasked to do a dissertation, I choose to make a case study on the center. The very least I can do is to codify the history of iCentre and the people who were involved there for posterity to read and remember. To conduct the study, I targeted the entrepreneurs (whom I call the iCentre veterans) and officers who were associated with the centre. Many of them were people I met during my sixth form years. They gladly gave their cooperation, which proved to be invaluable in realizing this study.

When I finally finished the dissertation and came back to Brunei in 2016, I slowly realized there was a positive change to the center. Far from being shut down, it got the further support of the government through the new management DARE to continue and expand its mandate. Now the centre is stronger than ever before. I was impressed by the DARE team for continually utilizing and maximising the space to sustain the innovation, startup, and entrepreneurship culture in the country.

Today, the place is filled with younger entrepreneurs with fresh new ideas and perspectives from a variety of fields such as creative arts to Agri-tech.

All of them are hoping to make a success of themselves, as the veterans in the 2008-2013 era did during their time.

Surely iCentre has succeeded and will continue to succeed, as His Royal Highness Prince Mohammad Bolkiah said in his speech during the grand opening of the centre in 2008, to be a *“special place for a special group of people with great ideas and courage who want to prove themselves in the business world”*. I could not agree more with his statement.

Abdul Malik Omar
LED LSE Class of 2015/2016
am.hajiomar@gmail.com
+673-8605118

Acknowledgment

I would like to thank my parents, Haji Omar bin Haji Yaakub and Hajah Zalilah Binti Haji Abdul Razak, and my siblings Alif, Wadi, Amal, Ali and Najib for their support in my studies. I also like to pay homage to my grandparents Abdul Razak, Dyg Joharah, Hjh Rafiah and Hj Yaakub.

Moreover, I like to extend my gratitude to Dr Neil Lee, Dr Jun Li, Arina Narudin, and all of those who have guided me along the way to place me where I am today.

Additionally, I like to thank the interview participants comprised of the iCentre veteran-entrepreneurs and management team from DARE and BEDB who have taken their valuable time to partake and support this study.

Above all, I like to thank His Majesty Sultan Haji Hassanal Bolkiah Mu'izzaddin Waddaulah ibni Al-Marhum Sultan Haji Omar 'Ali Saifuddien Sa'adul Khairi Waddien, Sultan and Yang Di-Pertuan of Brunei Darussalam for sponsoring my Master's education at the London School of Economics.

I am forever indebted to this opportunity and privilege, and will do as much as I can to justify this reward by excelling in my present and future work in the effort to steer my country, Brunei Darussalam, towards a better, brighter, and stronger future.

Abdul Malik Omar
LED LSE Class of
2015/2016

Table of Contents

1. Abstract	7
2. Introduction	8
3. Literature Review	9
I. Global Local Linkages	10
II. Local Buzz	12
III. Industrial Policy	13
4. Methodology	14
5. About iCentre	16
6. Results and Discussions	20
I. Global-local linkages play a deciding role in promoting innovation	20
II. Policy Implications of global-local linkages	23
III. Local Buzz Intensifies Innovation	25
IV. When local buzz was negatively affected, then innovation took a hit	27
V. Industrial Policy plays a significant role in the Success of iCentre	29
VI. Deeper Insight on Industrial Policy	31
7. Summary and Conclusions	33
8. Parting Words	35
9. Reference	36
Appendix I: Company and Interview Details	46
Appendix II: Questions for Firms I	49
Appendix III: Questions for Firms II	50

1. Abstract

Innovation has been at the heart of economic development. Ever since Joseph Schumpeter published his landmark book “The Theory of Economic Development”, innovation has gradually evolved to become an essential subject looked upon by decision- and policy-makers as a source to enhance the competitive advantage of nations. Out of this realisation, decision- and policy-makers have placed into effect policies to induce innovation in targeted industries. One of such policies is the incubation hub. This dissertation will attempt at analysing the effects of such a policy through three theoretical frameworks namely through global-local linkages, local buzz, and industrial policy with reference to iCentre, the first incubation hub of Brunei Darussalam, as a case study and a semi-structured qualitative interview of fifteen people made up of iCentre professionals and entrepreneurs. This work concludes that such a programme can work in precipitating the innovation process. But only to the extent that it has to have the right management with rich global-local link networks in place, who are committed to devise an environment that promotes the innovation culture populated by the right human capital, and a long-term commitment by the government in carrying out industrial policy in the form of supplying financial and physical infrastructure, as well as general industrial support.

Keywords: Innovation. Global-Local Links. Local Buzz. Industrial Policy. Local Economic Development.

2. Introduction

Ever since Joseph Schumpeter published his work “The Theory of Economic Development” (1934), innovation has been a subject widely seen by decision- and policy-makers as a source to enhance the competitive advantage of nations (Porter, 1990). Out of this understanding, many economies have placed into effect policies focused on inducing innovation. One such policy is the introduction of incubation hubs. Such a policy is a subset of the wider context namely the National and Regional Systems of Innovation. Yet an incubation hub can serve as a key component to not only kickstart the innovation development process, but to precipitate it if it is done right. Carrying out this plan is easier said than done, however, as it is one of the most complex systems “known (both technically and socially) and the requirements for successful innovation vary greatly from case to case” (Kline and Rosenberg, 1986: 276). It is the objective of this case to add up to the existing innovation literature to understand the role of incubation hubs better. Using iCentre, the first incubation hub of Brunei Darussalam, as a case study as well as a semi-structured qualitative interview of fifteen people made up of iCentre professionals and entrepreneurs, this work shall analyse the hub through three theoretical frameworks, namely through global-local linkages, local buzz, and industrial policy. This dissertation shall also attempt at answering the following three research questions:

1. How effective was the role of iCentre in establishing the global-local link to enhance the innovation process for its firms?
2. Does the local buzz exist and how does it assist firms in iCentre to increase innovation output?
3. How crucial of a role was industrial policy (ICT industry) been in inducing innovation development in Brunei Darussalam?

The hypothesis is that incubation hub can be centerpiece of change which acts as an institution that facilitates innovation within a spatial context through the global-local links it possess, the local buzz it generates, and industrial policy support the government provides. The structure of the dissertation are as follows: In Chapter 3, the literature review. In Chapter 4, the methodology. In Chapter 5, the case study. In Chapter 6, results and discussions. In Chapter 7, conclusions. Finally, in Chapter 8, limitations and local economic development policy implications.

3. Literature Review

While there are no general accepted definition of innovation, this work shall define it as something which is “new with high-level of originality, in whatever area that also breaks into (or obtains a foothold in) society, often via the market, and mean something revolutionary for people” (Frankleius, 2009: 49). It may also include “new technological; economic; organisational and social solutions which are not necessarily marketable in an economic sense with direct monetary impact but are applicable and are being used” (Kotsemir and Meissner, 2013: 5). At the heart of innovation, it involves the “generation, diffusion, and utilisation of knowledge (Kline and Rosenberg, 1986)”.

Innovation is a subject that seeks to provide a greater degree of explanation beyond the frameworks of neoclassical economics. In neoclassical, the output of an economy is measured by two or more input (Solow, 1957). For instance, an economy which specialises in Oil production would have its output increased if there are more capital or more labour injected into the equation, and vice versa. Any results that lie outside the equation are called the residue, which, in turn, contribute to total factor productivity (TFP). It was a powerful quantitative tool in economics back then, and still is in regards to studying the causes of economic growth. The neoclassical model was subsequently questioned when an unexplainable degree of TFP (Comin, 2010) emerged, forcing scholars to undertake studies to analyse the anomaly. What they have found out was that innovation made up that difference, and subsequent findings have revolutionised economics. The theories of innovation began primarily with Schumpeter (1934), who, through his book, undertook a revolutionary study into the innovation theory as a critical component of economic development. The theory of innovation was built on upon by Romer (1994) who through his endogenous function, stipulates that knowledge could become a production function. The same case for Lucas (1988) who added human capital to the equation. Therefore, if an economy specialises in Oil wishes to increase its output, it has to look beyond capital and labour. It must also consider knowledge and human capital as well. The innovation theory expanded when landmark contributions of Krugman (1991) and Porter (1998) on economic geography and clusters enhanced the discourse on the literature as a factor to analyse why some nations or regions are more advanced than others.

In the pursuit of economic development through innovation, an economy has to analyse its current status as to whether it should undertake a course of

action regarding innovation development forward. For a developed economy, the primary focus would be to carry out pro-growth policies (Eastwood and Lipton, 2002), such as to raise and sustain the dynamic capabilities of high-growth industries. For developing economies, it should be much preferable to pursue pro-poor policies (Ravallion, 2004). It can pursue pro-growth or 'catch-up' policies, but so long as the socioeconomic foundation is secured. It does not make material sense for an economy to invest in building a Silicon Valley if the people are suffering through prolonged periods of hunger and disease. Also, an economy rampant in corruption may worsen pro-growth policies in the long-run (Keefer and Knack, 1997), as evident in some countries in Sub-Saharan Africa (Pose and Tijmstra, 2007). For an economy like Brunei Darussalam, there are resources and the socioeconomic foundation to pursue a catch-up process through innovation development. Such a process almost always entails the understanding of the systems of innovation (SI). The system of innovation is a pre-defined system that establishes the input, process, and output function of a goal. There are two facets to this namely the national systems of innovation (Freeman 1982, Nelson 1998, Lundvall 2007) and regional systems of innovation (Cooke et. al 1997, Iammarino 2005). The national systems of innovation are decision-making processes that focus on the "aggregate of micro-founded innovation activities are taken at a macro (national) level and, equally, that much micro-level activity is linked through a macro (national) web of interconnections" (Iammarino 2005: 2). Meanwhile regional systems of innovation is defined as "the localised network of actors and institutions in the public and private sectors whose activities and interactions generate, import, modify and diffuse new technologies within and outside the region" (Iammarino 2005: 4, Howells, 1999; Evangelista et al., 2002).

iCentre is an outcome of the decisions made by the Brunei Economic Development Board - please refer to case study in chapter 5 - to promote economic development through pro-growth policy in the innovation sector so as to precipitate the catch-up or convergence process. The regional systems of innovation (RSI) applicable to the context of iCentre because it is an institution that is geographically bounded and designed to 'generate, import, modify and diffuse technologies' (Iammarino 2005) in the Brunei/Muara District. The three main theoretical categories are as follows:

I. Global Local Linkages

Global-local linkages in this context refer to the networks or ties established by an institution such as iCentre between localised actors (firms) and international organisations (Bathell et. al, 2004). The role of the institution is then to develop the absorptive capacity of knowledge. The main reason why is because “regions depend on their ability to absorb, develop and apply new knowledge. Since knowledge tends to accumulate, new insights will not diffuse widely between firms and between regions (and that)... it is the primary role of an institution to bring them together” (Boschma, 2009: 12-13). Institutions play a role in enhancing the absorptive capacity of a region by encouraging it to become a learning region (Morgan, 2007) by generating, absorbing, and diffusing knowledge (Romer, 1989). The aim is to “create innovation which in turn stimulates economic growth and development” (Howells, 2002: 871). Such an institution is also called ‘gatekeepers of knowledge’ (Morrison, 2008). iCentre takes in the form of a KIBS (Knowledge Intensive Business Service) institution. KIBS act as a consultancy business that performs intellectually value-added services for firms (Muller and Zenker, 2001). It is crucial in "enhancing innovation capacities of client firms (SMEs) (and to) get stimuli for own inventions and contribute to the innovative potential of regions and countries" (Muller and Zenker, 2001: 18-19). Through their global networks and in-house capabilities, iCentre through KR Consulting was crucial in the innovation process. For instance, it was KR Consulting that organised the programmes (Exposure Trips, Inspire Talks, In-House consultancy). It also helped in strengthening the weak ties (Granovetter, 1983) between global and local links. The existence of KR Consulting (an NUS Business Unit) as a locally grounded KIBS in iCentre is enhanced by geographical proximity and co-location, and subsequently improved the knowledge transfer process. There are two types of knowledge in this context, namely tacit and explicit knowledge. Tacit is defined as an act of ‘indwelling’ (Polyani, 1962). It can be simulated by learning-by-doing (Arrow, 1962) and using (Rosenberg, 1982). Explicit knowledge is described “as general and abstract” (Lissoni, 2001: 1480) where understanding the experience "may require high education levels, and also some personal contacts, but no common social background,” (ibid). A KIBS must facilitate the knowledge transfer through the existence of an established global-local links. It must then transfer the knowledge into the heart of the targeted ecosystem which favours geographically localised learning (Boschma, 2009). Also, it serves as a mechanism to transfer knowledge to the local milieu as to establish common knowledge (Dixon, 2000) and basic capabilities (Winter, 2003) and subsequently unlocks dynamic capabilities (Teece et. al 1997).

II. Local Buzz

Storper and Venables (2004a: 365) conceptualised the term 'local buzz' as a spatially defined environment where individuals can "interact and cooperate with other high-ability people, are well placed to communicate complex ideas with them, and are highly motivated." In creating the local buzz, they elaborated as how it "incorporates the upstream conditions of knowing what is happening; intentional face-to-face contacts; and unintentional or more diffuse face-to-face 'rubbing elbows,' or the force of 'being there.' (It is more than the) 'circulation of information,' or participation in 'networks.' It is, respectively, what enables the first to happen, and the way that the second functions" (Storper and Venables 2004b: 31). While the context of their study focuses at the municipal level, this study shall apply the analysis at the micro-economic level (Bowles, 2009). Through the perspectives of Schumpeter's Mark I (Schumpeter, 1947), this work shall study the phenomenon of localised buzz of the behaviours of firms and management within the iCentre building. The existence of the buzz within iCentre would enhance their productivity by means to increased social capital (Putnam, 1995) and absorptive capacity within a cluster. The right concertation of human capital (Romer, 1989; Lucas, 1988) would be vital to ensure that the ecosystem could be maintained and enhanced. It would then create that 'buzz environment'. With the management serving as the "agents of knowledge exchange between firms (hence allowing) these (them) to participate in continual recombination of knowledge, adjustment of their products (frequently intermediates) to the changing needs of the industry or new applications or uses" (Storper and Venables, 2004: 10). Finding the right people and placing them together could also enhance the innovation process. An example would be the "star scientists", whose intense relationship within a bound spatial context raised their productivity output (Zucker and Darby, 1998). Selecting the right people and placing them in the system is crucial in enhancing innovation. To select 'star entrepreneurs', iCentre does this by a stringent criterion process. Also, the level of amalgamation of human capital would increase knowledge innovation through proximity (Boschma, 2005; Sonn and Storper, 2008). Having a strong buzz also helps in enhancing the absorption capacity (Cohen and Levinthal, 1990) of knowledge 'spilled over' (Acs et. al, 2009; Audretsch and Lehman, 2006) into the cluster through the global-local pipeline. The way to navigate and quantify 'buzz' is hard. Much like how the 'knowledge is in the air' (Marshall, 2009; Singh, 2007), the process to quantify the buzz is hard to

put into numbers. This work shall attempt at interpreting the interviewers and based on the results; it exists.

III. Industrial Policy

Industrial Policy is defined as “government efforts to alter industrial structure to promote productivity-based growth” (DECD, 2016). And development “is fundamentally about structural change: it involves producing new goods with new technologies and transferring resources from traditional activities to these new ones” (Rodrik, 2007). Countries like Brunei Darussalam pursues an industrial policy in the ICT sector through the E-Government initiative (Kifle and Cheng, 2009). Industrial policy is crucial to Brunei as a way to diversify its economy from Oil and Gas. One of the foremost and earliest scholars to promote industrial policy was a German nationalist by the name of Friedrich List (List and Cowell, 1856). In his work, *National Systems of Innovation* (1856), he reflected on the rapid rise of Germany as an industrial power as a result of the strategic intervention in the economy. Before this, there was Alexander Hamilton, who through his work ‘*Reports on Manufactures*’ (1791), advised the US government to intervene actively in the economy to build up nascent and infant industries. It was so successful that by “1880 the United States of America had overtaken and surpassed England as industrial leader of the world” (Gill, 1990). The ideas of Friedrich and Hamilton morphed into what is known as the National System, which holds three cardinal principles namely for the government to create physical and financial infrastructure, and to support industry (List, 1856; Carey, 1872). Gary Becker (1985), a notable figure in market economics, said: “The best industrial policy is none at all”. The quote reflected the attitude of an age dominated by Washington Consensus-type Policies (Williamson, 2000). The idea only resurged over the past few years ago with Dani Rodrik (2004), Robert Wade (2012), and Ha-Joon Chang (Lin and Chang, 2009) stating the need to have the policy to promote structural economic development. The author *Entrepreneurial State* (Mazzucato, 2015) explained why market economics might have unleashed the powers of innovation, the government is still a vital but often neglected force in economic development. Saxenian (2007) in her book, *The new Argonauts*, she stated how the success of Silicon Valley is built upon the investments by the US government in the past in industries such as semiconductors, satellite, and military-related equipment and technologies. As written, Governments enable decision- and policy-makers to carry out structural changes through industrial policy. In *Innovation*, scholars call it as National Systems of Innovation (Freeman,

1995; Lundvall, 1992) and Regional Innovation System (Cooke et. al, 1997; Immariano, 2005; Howells, 1999). Not surprisingly enough Lundvall drew inspiration from the works of Freidrich List (Freeman, 1995) to create the concept. The provisions of the support of resources (infrastructure, finance, and industrial support) reflect on producing enabling an environment to kick-start the business of the firms, as reflective of the Penrosian view (Penrose and Pitelis, 2002; Wernerfelt, 1984). One of the biggest concerns on industrial policy is long-term sustainability and self-sufficiency of the firm. Therefore, a government must be cautious to avoid stagnation by continually investing in matters that generate dynamic capabilities (Lawson and Samson, 2001).

4. Methodology

This dissertation attempts to analyse the importance of the role of global-local links, local buzz, and industrial policy innovation development through a semi-structured qualitative interview of fifteen participants. The interviewers were about their personal observations, involvements, and experiences operating in iCentre. Subsequent results will be discussed through thematic analysis (Vaismoradi et. al, 2013) through the lens of global-local links, local buzz, and industrial policy. The main reason why fifteen people were selected is to achieve a 'saturation point' (Guest et. al, 2006; Mason 2010). A saturation point is when enough people are interviewed to extract critical information that can extend the "investigator's research in situations where he or she has not, or cannot, be a direct observer, and they can illuminate the meanings of behaviour that the researcher does not understand. (It also can) serve as a check on the information obtained from other informants" (Ritzer 2007, cited from Blackwellreference.com). Their personal names are anonymised, but the names of the firms and contact details are retained (see Appendix 1). Each interview took between thirty minutes to two hours.

Participants were divided into two groups. The first are the entrepreneurs/firms (7 people) and the management (6 people). Two separate questions designed for each criterion (see Appendix II and III for questions). The aim is to get enriched input from both parties and to secure two sides of the story. The first question asks a general description of the business of the firms during their tenure and what made them decide to join the iCentre programme. Secondly, what pulled them to joining the iCentre programme. Next, how has iCentre supported in developing their business.

Fourth, how was the support concerning the Exposure Trips, Inspire Talks, and in-house consulting helpful to their innovation process? Fifth, how was the provision of finance (grants), infrastructure (subsidised rental), and industrial policy (government contracts) been helpful. Sixth, how effective was the role of iCentre to them as an institution that facilitates global-local linkages. Finally, how have post-iCentre operations been like and how has the experienter? The questions for the management are almost similar save in four regards. First, rather than focusing on the business description, it focuses on what their roles were as a direct or indirect manager of iCentre. Next is how iCentre has evolved over the years and the future to come, so as to secure information of the past, existing, and future strategies in developing iCentre forward. Next, is what were the major factors that attracted firms to set up in iCentre. Finally, to ask them whether iCentre have been helpful overall.

The overall answers to the questions provide surprising insights that would be expanded later on in the results and discussion section. The way the response will be recorded is by using codes. E shall stand for the firm; M stands for the manager. See the full appendix for more detailed information about the companies interviewed. Below is the data information.

Code	Firm Name	Code	Management
E1	Rafiqun IT Services	M1	iCentre (KR Consulting Pte Ltd)
E2	Expansys Technologies / Chrends SDN BHD	M2	iCentre (Star Incubator SDN BHD)
E3	SocialBuzz Advertising	M3	iCentre (Star Incubator SDN BHD)
E4	Infindo and QQeStore	M4	iCentre (SUHBE Co)
E5	Lighthouse Ideas Co.	M5	DARe Enterprise
E6	Lighthouse Ideas Co.	M6	DARe Enterprise
E7	HoCo Creative		
E8	Ambuyart Animations		

E9	Weekend Warriors		
----	------------------	--	--

There were indeed challenges faced throughout the methodology journey. The first factor is the limited population base. While Silicon Valley could have up to tens of thousands of entrepreneurs (population), iCentre only numbered less than a hundred people (including management and entrepreneurs) leaving a smaller sample size, in the end, to choose. This challenge was augmented by simply being persistent in emailing as many of them as possible. Next is to be based there and ask them directly when they were around the lobby. By explaining to them how valuable this research could be for iCentre and their business, I managed to persuade them to participate. Referrals also helped. At one time I was able to secure and subsequently interview four contacts from the manager. At one time, I managed to talk to five people within a day by taking advantage of the proximity and local buzz.

The second challenge is the lack or absence of scholarly literature on the innovation systems of Brunei Darussalam and iCentre. It forced me to look at sources mostly coming from the local media (Brunei Times and Borneo Bulletin), research working papers, and presentation slides (courtesy of the iCentre and BEDB team). The iCentre and BEDB (Dare) team were extremely helpful. They gave me much valuable information. For lack of publicly available scholarly literature, it peeves me personally why most local scholars or students would not choose to publish their work in Google Scholars. I did meet one person who is willing to share insights on her work on Anggerk Desa Tech Park (which includes iCentre), and I appreciate it.

5. About iCentre

iCentre is the first information and communications technology (ICT) incubation hub in Brunei Darussalam set up by the Brunei Economic Development Board in 2007. It is located at Anggerk Desa just less than a ten-minute drive from the Brunei International Airport. The project was officially launched on the 26th March 2008 in the presence of His Royal Highness Prince Mohamed Bolkiah, the former Minister of Foreign Affairs and Trade. In another address, the then Chairman of BEDB Timothy Ong said how iCentre was “created to encourage innovative ideas from youths who are the next generation of businessmen,” (Brunei Times, 2008) and “to tap hidden potentials of creative and innovative individuals” (Brunei Times,

2008). The BEDB CEO Vincent Cheong said how "(t)he iCentre is more than just a physical location; it is focused on providing the entire value chain of hard and soft support including mentoring, guidance and networking for innovative start-ups," (Brunei Times, 2009). "The iCentre provides a safe haven for our budding technopreneurs to nurture their talents and experiment their ideas with a view towards commercialisation", he added (Brunei Times, 2009).

Before its \$1m renovation (Borneo Bulletin, 21st October 2009), iCentre was one of Brunei's underutilised properties. The hub is now capable of housing 16 offices (2007), has meeting facilities, soft infrastructure (high-speed internet), and a cafe. Managing the incubation hub is KR Consulting Pte Ltd, a business unit of NUS Enterprise which provides KIBS consultancy services specialising in setting up high-tech business incubation programmes in the region (Newshub, 2008). Co-managing it is Star Incubator Sdn Bhd, a locally registered company.

The objectives of iCentre are as follows (information courtesy of Dare, BEDB and iCentre):

1. Nurturing the entrepreneurship spirit
2. Provide skill-building workshops and mentoring sessions
3. Encourage collaborations and building up networks,
4. and Support Internship Programme.

In the efforts to achieve its objectives, a list of programmes were introduced, devised, and organised by iCentre (KR Consulting Pte Ltd and Star Incubator Sdn Bhd). Five of these programmes will be looked into. These are Innovate, Inspire, Incubate, Ignite, & Internationalize (every word has 'I' at the beginning).

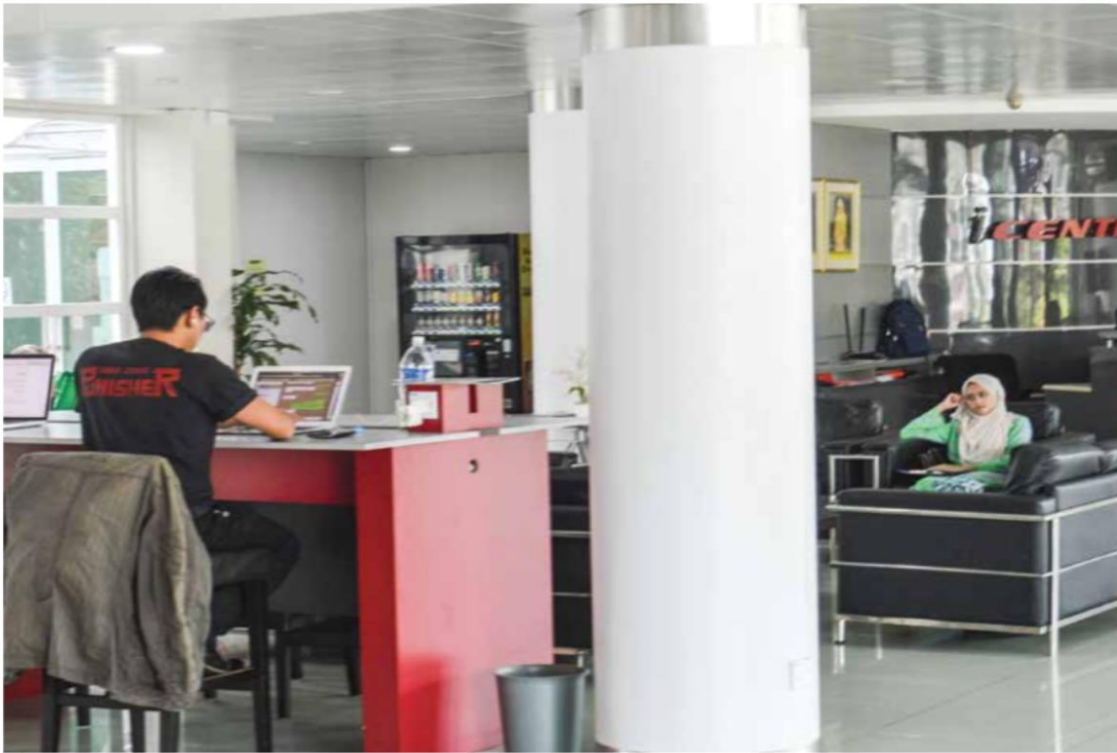
1. Innovate is a yearly open forum that invites speakers, entrepreneurs, government officers, and industry experts to discuss the latest trends in innovation.
2. Inspire is a talk series that brings in external speakers and industry experts from outside Brunei to deliver regular public talks in iCentre.
3. Incubation project guide incubates for 24 months, and they require the incubators to provide a quarterly report of the progress of their project. Criteria have to be met (see page)

4. Ignite is a national business plan competition used by iCentre to secure new entrants or firms into the incubation programme.
5. Internationalise (also known as 'Exposure Trips') exists to give exposure to participating companies to visit well-known ecosystems such as Silicon Valley, Block 71, and much more.

iCentre also aims to establish “international relationships and strategic alliances with numerous well-known venture capital organisations in other technology hubs around the world,” (iCentre, 2016) as well as to organise events for the firms to participate in the local and international arena (iCentre, 2016).

iCentre firms will be given access to necessary physical (cheap rent and fast internet connection), financial resources (grants), and government support (government contracts, brand recognition). As an incubator, firms are also given in-house consultancy support.

What makes iCentre particularly appealing and worthy of study is how it paved the way for the regeneration and redevelopment of Anggerek Desa into a Technology Park. The Technology Park is an initiative by BEDB. It consists of the iCentre (Phase 1), the Knowledge Hub (Phase 2) and a new building under construction (phase 3), will be the centre which develops innovation and entrepreneurship in the high-tech high-growth industry (Brunei Times, 2014). The overall aim is to establish a cluster that “provide better facilities and environment that would cultivate entrepreneurship and innovation in the country,” said BEDB's senior manager in innovation and new initiatives Daniel Leong (Brunei Times, 2013).



(The iCentre lobby, the place where entrepreneurs, consultants, and DARE/BEDB officers tend to hangout and discuss ideas. Notably this is the place where the “local buzz” is generated. Picture taken by author.)

iCentre also plays an important public role in promoting entrepreneurship to the people of Brunei. In the figures provided courtesy of iCentre, more than 3500 visitors (foreign delegates, students, government officials) as of 2014 have visited iCentre. It was so popular that iCentre was once a ‘tourist centre’ (E1, E2, M2, M3). Delegations from around the region (Singapore, & Malaysia) and the world (Middle East, S.Korea, US, UK) visited iCentre to seek opportunities for potential partnerships, collaborations, and investments. Also, it has generated more than 1400 media coverage through private and government news agencies, as of February 2015. Over 2100 applications & for internships have been provided and 200 people employed (a cumulative figure across the years of operation from inception to 2008). At its peak of 2011-2014, iCentre became one of the most active places to ‘work and play’ in the city (E4).

In 2011, through a series of restructuring, BEDB, and hence iCentre, was placed under the control Prime Minister's Office Brunei. In 2016, Dare

(Darussalam Enterprise), a statutory body was set up and was later empowered to manage iCentre. The restructuring in 2016 led to two things: First, the contract with KR Consulting was not renewed, causing most of the programmes to come to a halt. iCentre became inactive for a while up until a few weeks ago in June 2016 (at the time of writing) that Dare appointed a new team to charge and revitalise the operations of iCentre (Brunei Times, 2016). iCentre today faces a different future altogether under the new management. What would the outcome be? Only time will tell.

6. Results and Discussions

I. Global-local linkages play a deciding role in promoting innovation

The general findings for global-local linkages as a factor for knowledge transfer based on the interview shows found a positive outcome in promoting innovation and knowledge development. The global-local linkages which were established and intensified through the programmes created by iCentre, such as Inspire talks, Innovate Forum, & Internationalise (Exposure Trips) programmes. Altogether it aims to add to the knowledge stock needed to guide firms to achieve the core and dynamic capabilities in iCentre. The core capability is described as the primary or 'bare minimum' capacity (den Hertog et. al, 2010; Dixon, 2000) of a firm to operate commercially in a market. Dynamic capability is a company's ability "to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et. al, 1997). Also, the global-local links aim to attune the Brunei local ecosystem to its international networks, actually establishing a 'global pipeline' or global-local link (Bathelt, 2004) where knowledge would flow in and out of the local system is important. These factors were helpful in producing and sharing information to increase the overall knowledge stock needed in the build-up innovation process. Here iCentre could be described as the gatekeeper of knowledge (Morrison, 2008) for the ecosystem.

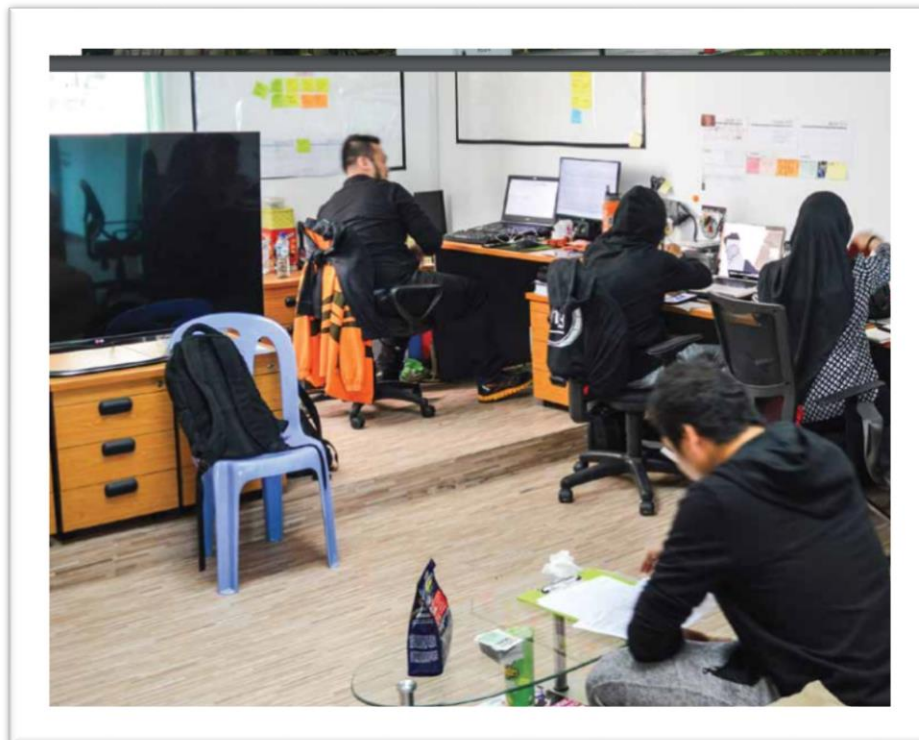
The findings on the Inspire Talks and Innovate series by iCentre has shown a positive effect in adding knowledge to the firms, in particular, explicit or codified knowledge. Many of these talks centered on business strategies, current technological trends, and best practices of the industry. The speakers are made up of industry experts, professionals, successful entrepreneurs, etc. The speakers include Mark Lankaster (CEO of Tunehotels), Mr Allen Grant (Google), Khoong Hock Yun (Assistant CEO IDA Singapore), Kelvin Walsh (CEO Oracle), Michael Reyes (Director of

MoneyTree), Seah Chin Siong (CEO of IDA International Singapore), Me. Kareem Chaudry (Regional Director, Oracle), Ash Singh (CEO of interactive.sg), Aulia Halimatussadiah (Co-Founder and CEO of nulisbuku.com), and Lo Sheng (Co-Founder of Muvee Technologies). The firms interviewed (E1,E2,E3,E4,E5,E6,E7,E8,E9) remarked how vital these knowledge were in shaping their businesses forward. Having these international speakers to deliver talks in Brunei is reflective of the temporary proximity (Rychen and Zimmermann, 2008) theory which stipulates that a momentary exposure (often for a day or two) could add up new knowledge or insights to the ecosystem. It also increases the probability of achieving a critical mass (Witt, 1997) in innovation process, and to ensure the ecosystem does not face any lock-in (Leibowitz and Margolis, 1995)

In regards to the Exposure Programmes, where firms are sent overseas for a trip to train and get exposure at other established ecosystems such as Silicon Valley and Block 71, all the interviewers found it extremely valuable especially in attaining new insights or tacit knowledge (E1,E2,E3,E4,E5,E6,E7,E8,E9). Seeing Silicon Valley first-hand gave them a glimpse and feeling of the 'buzz' and culture that serve as a prelude to inspire them to do well in their firms. These exposure trips took them into headquarters offices such as Google, Oracle, and much more. They were amazed at the level of standards they experienced. Many remarked the difference in the way of doing things were. Some (E3, E6, E7, M2) recalled how the entrepreneurs based there were willing to fail and start over again. Some others were amazed to see how some entrepreneurs were still awake late in the night, indicative to their commitments to their willingness succeed (E2, E5, E7). Others commented how the ecosystem was much bigger and stronger than one back in Brunei, especially in regards to the market size (M1, M2, M3). One of the managements (M2) commented how she met a start-up team a few years ago in Singapore's Block 71. Two years after, she met the Singaporeans again, and she was surprised their business were extremely successful, that they could afford a proper office space in the Singapore CBD. The tacit knowledge attained from these trips somewhat broadened the outlook and fortified the motivation to succeed of both local firms (E2, E3, E4, E5, E7, E9) and management (M2).

The trip organised by iCentre also gave them the opportunity to speak, discuss, and pitch ideas with the international firms. Through this, it also gave rise opportunities for one of the firms. After a pitching session, E9 was given a job by an investor. E9 declined because he wanted to focus on building his

start-up. Some went further. E2 was inspired by Silicon Valley that he migrated and stayed there for six months to work, test, and launch his App. He has returned to Brunei since. The opportunities have shown that these trips have been monumental in establishing and strengthening local-global links needed to enhance the innovation process. The interactions between global-local actors reflect the study of Castellani and Zanfei (2007: 171-172) that companies “with the highest international involvement...are characterised by both the highest productivity ... and the highest R&D efforts and innovative performances”. It would contribute to creating the local buzz.



(People working together in one of the iCentre offices. Picture taken by the author)

The in-house consultancy service, whose team are made up of experienced management (M1) with global links, helped primarily to guide and enhance the core and dynamic capabilities for the firms. Being there contributed to intensifying the knowledge transfer process to the domestic companies in iCentre. They also took an active part by organisationally embedding themselves into the system by offering mentorship, training, and consultancy programmes. In an interview, almost all (E1,E2,E3,E4,E5,E6,E7,E8,E9) stated how they have learned a lot from the management and have put them to good use in their subsequent ventures. Therefore, the iCentre management brought about in-house international expertise to increase the

standards of the capabilities of local companies to innovate throughout the incubation process, a process which many domestic firms and even the local management have found valuable in shaping themselves forward.

II. Policy Implications of global-local linkages

When asked about the improvements, the entrepreneurs (E3, E5, E6, E7, E8) preferred that international speakers could have stayed longer. The temporality resulted in a weak global-local link and limited exchange of information. Had they stayed longer, the speakers could have imparted richer and deeper knowledge or experience, said (E3, E7). The experience is reflective of the importance of grounding new insights or knowledge units within a system to intensify the diffusion, generation, and utilisation of knowledge for innovation purposes. Some commented how the speakers may have left good ideas impressions for their innovation (Granovetter, 1985, 1983), they were short-lived leaving many firms inadequately satisfied. It shows that cases in regards to knowledge that requires 'learning by doing' (Auerswald et al. 2000) could not transfer as easily. A management expert could share topics on management for a day, but that does not mean the hearers could become expert managers in a day. It takes learning-by-doing and this, in turn, requires self-learning and experience from the part of the firms. Another commented like an 'Energy Drink', one day they are "fired up or inspired to succeed" and the next day it all goes back to normal again (E8). Had iCentre have strongly embedded the speakers to the ecosystem - potentially in the form of having them invest in the firms - the knowledge transfer process would have been intensified further and may generate radical innovation (Von Krogh, et. al, 1996).

However, iCentre did their best to augment this problem. In a follow-up email correspondence with the management, BEDB and iCentre did establish a relationship with two international companies, Side Effect and Autodesk, which resulted in the development of CRAFT, a 3D modelling and animation programme (2013). They embedded them into the system to provide these training programmes for the local market to learn.

Secondly, the Exposure Trips helped a lot especially to new firms, but not so much to firms that have already gone through the experience (E2, E3, E4). For them, they were not as useful. Here are some of the reasons documented. First, it is an expensive trip (E8). A week trip programme going to Toronto, Canada would easily cost BND\$4000 per person. For a start-up,

\$4000 is a huge amount. Second, there were no guaranteed monetary returns through the pitches or experiences made through the programme (E8). Third, iCentre were not able to produce global-local links needed for the firms to access organisations or resources in these global ecosystems (E8, E7, E3). Had iCentre succeeded, the companies could have gone individually to the HQs of major MNEs in Silicon Valley, etc. without depending too much on the Exposure Trips. Fourth, some people said the environment and experience became too repetitive that it is not worth the time and money to go back to Silicon Valley twice, for instance.

An interesting insight from one of the entrepreneurs comes from his reflection of some of the facilities in Silicon Valley (E8). That were many infrastructural (soft and hard), educational, technical, and technological similarities comparable to what Brunei Darussalam has to do his work. In fact, his 'technical equipment was better than most of the people he saw in the offices he visited' Brunei has these technologies required for local entrepreneurs to access and innovate, he said. Reflecting on what he said, it has shown that Brunei does have the core technological standards set needed to precipitate the catch-up or convergence process. The question is "why are we not using the most of the technologies we have?" he asked (E8). The tacit knowledge or experience pushed him to see things differently from then on.

Further, the varying areas of specialisations (social media, 3D design, online shopping, apps development, and programming) of firms made it extremely hard for iCentre to provision specific technical support as it would be expensive and uneconomical. Instead, the general strategy of iCentre is to focus on building the core capabilities of firms. In an interview, the management (M1, M2, M3, M4, M5) said how iCentre ran several courses on development and training entrepreneurs on validation of their business idea, as well as workshops. They did not focus much on other technical details such as animation and 3D modelling training was "done in partnership with Universities and Technology partners like Microsoft." (M1) Within the context of iCentre, the firms have to study themselves the skills needed to innovate. Many used online education resources (Youtube, Coursera, Udemy). Others just outsource the work to someone else. It shows that while global-local links have its limitations in such that it may serve as an excellent facilitator to build up 'soft skills' of firms (Robles, 2012), but not so much on 'hard skills'. Either they have to learn the skills themselves (E1, E2, E4, E8) or outsource the job to others (E3, E4, E5, E6, E7, E9).

III. Local Buzz Intensifies Innovation

In regards to the local buzz as a source to enhance absorption capacity of knowledge transfer, results have shown that the incubation hub serves as a concrete platform to enrich and unlock that goal given the right human capital (Romer, 1989) is in place. With the right human capital, new firms would be more willing to communicate, share, and discuss ideas with one another. The existence of such an environment produces that 'localised buzz' in iCentre.

As “success and survival depend on creativity, innovation, discovery, and inventiveness” (Martins et. al, 2003: 64), organisations such as iCentre (KR Consulting Pte Ltd and Star Incubator Sdn Bhd) tries its best to create an organisational culture (Schuster, 1986). Its objective is also to and an “institutional framework in which creativity and innovation will be accepted as basic cultural norms in the midsts of technological and other changes” (Martins et. al, 2003: 64). According to interview, the firms did feel a 'difference'. At the peak in 2011-2014, people would simultaneously go 'down to the lobby and share ideas together' they said (E2, E5, E6, E7, E8). In some cases, they would strike joint-projects. For instance, if there were a big Government (E-Government) contract, they would work together on it. The partnership is right for two animation firms, where the leading company would secure the contracts and subcontract the other job to the other firm (E8) In the process, it has generated more trust, partnerships, and hence joint-activities needed to enhance the innovation process.

Having a continual flow of the right human capital is vital. In selecting these people, iCentre plays an important role to whom gets to be chosen into the ecosystem. They do so by following four stringent criteria. Here potential firms must consider as to:

1. How innovative the ideas are,
2. How big the local and international market potential (scalability model) are,
3. The ownership status of the firm (must be Brunei-owned),
4. and team quality of their project (Brunei Times, 2012).

Only eight or nine out of sixty-five entries were selected into the programme when it just launched (2009). It also holds the Ignite competition (formerly known as Think Big Competition) as a source to find new human capital to be fed into the ecosystem. As of 2014, over 656 business plans have been submitted. Winners were given the opportunity to join the ecosystem, as well

as have won the cash prizes and resource access. Selecting the right firms to be based there through a stringent process ensures the right people or what Bass and Avolio (1993) would call 'transformational leaders' to be based there. The management (M1) put forward a paradox, namely that "entrepreneurs are not made, they are born" and vice versa. With this in mind, the firms I interviewed displayed unusual two characteristics and background, which somewhat reflects the management view.

1. Almost all of the firms are inherently entrepreneurial (E1, E2, E3, E4, E6, E7). They have that innate motivation to succeed in business and their specialised fields. Many said that, had they not secured the position in iCentre, they would have set up a business anyhow. Next, there were those who had no initial entrepreneurial leanings (E5, E7, E8, E9) but later came to embrace them due to being influenced by their friends or contacts within the ecosystem.

2. They have the prior business or technical experience before setting up a firm in iCentre (E1, E2, E4, E5, E6, E7, E8). Most of them have full-time jobs or part-time businesses before this. Many noted how their previous experience helps a lot in building up their businesses in iCentre. Some were software engineers, marketers, animators, business developers, and online entrepreneurs. There was rarely any students in the interview, save one (E3), who is inherently entrepreneurial and had a part-time business in operation in university - he later won the Ignite competition and became an incubate in iCentre.

3. Even though many of their businesses are no longer active in iCentre, they, still continue to set up spin-off businesses that are not related to ICT (E4, E5, E6, E7). One even owns an international and best-selling bubble tea company franchise (E4). They remarked that the skills they secured in iCentre, especially in regards to mentorship (E4), was extremely vital for their subsequent business successes. Then there are those who just started their journey (E9). Even one of the local managements of iCentre has few businesses of her own (M2)

The results show that the concentration of highly motivated people within a building, selected through a stringent criterion, coupled with the innovative culture produced by the management facilitates the 'local buzz'. The local buzz, in turn, enhances innovation in the hub.

IV. When local buzz was negatively affected, then innovation took a hit

Although the local buzz exists, the necessary impetus to sustain the process came to a halt due to three reasons: Misalignment of top management objectives, lack of continued human capital in-flow, and absence of skilled workers.

The 'local buzz' was particularly affected when a misalignment of upper management objectives as a result of the restructuring process which occurred around after 2011 when BEDB was taken over by the Prime Minister's Office. A manager (M1) hinted how the upper management wanted to intervene in the programme that it led to the misalignment of objectives. The lack of autonomy probably caused a long series of disruption in the ecosystem that in turn affected the firms. One firm (E8) commented how he was suddenly asked to produce an audit for his business. There was no proper explanation whatsoever, and it seemed as if it was a directive that came from outside iCentre. He reluctantly agreed and submitted it. At one time he was offered to do a joint-project with an international company, but only if he met certain conditions and standards from the upper management. Although he did not specify what these rules or conditions were, he told how he meet them all after months of training and self-certifications, only to be rejected. He was disappointed at this. He left in 2016.

The restructuring continued in 2016 when Dare took over iCentre. Probably because Brunei Darussalam was affected by the oil crash that led Brunei to project a \$2.28billion deficit for the 2015/2016 financial year. The deficit is "roughly equivalent to 10.5 per cent of the country's GDP, a more than 10-fold increase from the \$213 million deficit recorded in 2014/15." (Bandial and Sadikin, 2016). This probably led the government not to renew the KR Consulting (KIBS) services and fund the iCentre operations. Without KR Consulting, it led to the total discontinuation of the programmes (Inspire Talks, Ignite, Innovate, and much more). Everyone in the ecosystem was affected by the management (KR Consulting and Star Incubator) announced the ending of their 8-year term of managing iCentre. Needless to say the 'local buzz' was significantly affected. It took iCentre five to six months before it was fully 'revitalised again under the management of Dare, but by then most of the firms have already left (those interviewed are leaving iCentre as well). The company interviewed (E7, E8) commented how 'different' and 'empty' the place was when they revisited the hub. One (E8) noted how upon returning to iCentre for a short visit; a government clerk greeted him. From

that moment, he told me that the place has become like another government office, devoid of any 'buzz'. He (E8) and few others (E1, E2, E5, E6, E7) also reminisced as how people in the past used to go down to the lobby and brainstorm ideas but noted the absence of such 'local buzz' during the inactive period of iCentre. The experience shows that while in-house management and firms may be a source of producing the buzz, they cannot escape from being affected by the decisions made by top external management.

Another problem that iCentre faced was the lack of sustainable and continued human capital and skilled workers into the ecosystem. Two leading causes could be the highly stringent process and the 'grant-entrepreneur' mindset (a term coined by E2). In the first regard, this work has already stated that iCentre selects entrepreneurs based on strict criteria. But over the years iCentre found it hard to find new people that met these criteria. They expanded the category to include students but then realised that the students did not have the necessary innate entrepreneurial spirit, and professional background needed to commit readily to setup a firm in iCentre. The second reason is that many of those who joined in the competition were in just for the cash prize, not so much in setting up a real business. While it is an entirely reasonable experience for any incubation hubs or organisations to face these situations, it became dire that people were just in for the money and not to start up a business. Thus, without adequate new talents flowing into the system, the 'local buzz' waned.

It also did not help given the limited office space. There were only sixteen in total that the firms can utilise. In total, it could house up to eighty to ninety people (mostly staff members). Had iCentre been bigger, it could also have managed to absorb founders or 'star entrepreneurs; (who are not necessarily team members) needed to precipitate the innovation process within the centre. Clustering more highly motivated entrepreneurs together could increase the probability of the generating change, as reflective of the study of 'Star Scientist' (Zuker and Darby, 1999). It could also have sustained the 'local buzz' over the periods of operation (Bathelt, et. al, 2004).

In enhancing innovation, skilled workers who have technical skills have to be present. What the study have found out is that some of the entrepreneurs lacked the skills needed (programming, apps development) to achieve dynamic capabilities to innovate. Some of the entrepreneurs (E3, E7, E9) outsourced coders and programmers from outside the country to do their

website, apps, and designs. One person (E7) outsourced an app project to his little brother, who was studying in Canada. Others used interns (E8) on an apprenticeship basis to do their work. Some attributed to the lack of skilled workers due to the education system (E2, E3, E7, E8). The lack of skilled workforce has been particularly true in before 2008-2010 when Brunei did not have a strong educational system needed to churn out qualified employees in the ICT arena. Things are different now as evident by the comments made by the management (M5, M6). Both stated how they were surprised at how students from UTB (which now offers computing courses) were able to self-produce their apps and website. Despite this, most of the firms interviewed (E1) took upon themselves to learn the skills online themselves (Youtube, Coursea, Udemy) or to outsource them.

However, for an ecosystem to achieve dynamic innovation in a cluster, firms have to master the core capabilities of innovation. Eventually to have them master and learn the skills themselves. In the Triple Helix, Etzkowitz mentioned the following after all: “Knowledge- based economies are more tightly linked to sources of new knowledge; they are also subject to continuous transformation instead of being rooted in stable arrangements. Fostering a continuous process of firm- formation based on advanced technologies.... moves to the heart of innovation strategy” (Etzkowitz, 2008: p5).

V. Industrial Policy plays a significant role in the Success of iCentre

The role of government should not be overlooked. After all, iCentre would not have been made possible without the government. iCentre, as stated earlier, was initiated by the Brunei Economic Development Board as part of an industrial policy to enhance the capabilities and grow the ICT industry in Brunei Darussalam. Using the National Systems framework, this section will discuss on the provision of physical and financial infrastructure, and industrial policy.

The first assistance is the provision of physical infrastructure (soft and hard infrastructure). iCentre has high-speed internet, conference and meeting rooms, a cafe, sixteen office units, parking lot, and much more. Before the \$1 renovation, the iCentre was one of Brunei’s underutilised properties. The provisions of these infrastructures facilitated the environment for its firms to operate and innovate. The subsidised rental (Virtual and Physical), location just 15 minutes from the airport, and being clustered within an ecosystem of

the right people and skilled people concentrated on ICT helped in the innovation process. Such an environment enables firms to capitalise on the 'local buzz'. On the general days, they would gather down in the lobby to brainstorm and discuss ideas together. The high-speed free internet also helped to increase their productivity and reduce the cost of their business operation. Overall there was a positive impact to the businesses (E1, E2, E3, E5, E6, E7, E8, E9).

The second assistance given by the government is financial support. The support takes the form of the provision of grants and cash prizes for the business plan competition, contracting the consultancy services, hiring cleaning and security services, and much more. In regards to innovation development, the focus of finance has got to do with providing grants to the firms. The firms noted positively as how those grants were helpful in kick-starting their businesses (E1, E2, E3, E4, E5, E6, E7, E8). It is also because of money they were attracted to set up a business in the first place. These grants and cash prizes were awarded through iCentre ignite competition and BEDB LEAP Enterprise Fund. As of 2014, a total grand prize of \$353,000 was given out (iCentre Slides, 2015). The grant awards were subsequently utilised by the firms to start and sustain their operations. Other financial assistance includes contracting speakers for the Inspire Talks, subsidising participants for the Exposure Trips, paying for the general cost of operation in iCentre such as cleaning and security services, and much more.

The final by the government is the industrial strategy. In the case of Brunei Darussalam, most of the firms in the country are dependent on government-to-business contracts as a source of revenue. It is somewhat an anomaly for a country being dependent on Oil and Gas (70% of the country's GDP is dependent on Oil). For the ICT sector that was in its infancy back in 2008, the government plays a part to produce the necessary demand for the supply of domestic firms by contracting government jobs to companies in the centre. It culminated with the E-Government initiative, with the government opening tenders worth millions to the companies across the country. It intensified in 2010 when Oil was \$100 a barrel. Some stated that without these contracts, their businesses would not have sustained itself across the years (E8). It also became a huge source of income to them. These jobs include securing opportunities to develop animation (E8), database systems, GPS instalment systems, online education, and much more.

VI. Deeper Insight on Industrial Policy

While BEDB's iCentre has been monumental in enabling innovation development for its firms, it became a challenge years later in sustaining them. The operations were plugged out in 2016 partly due to three reasons, namely the failure of companies to self-sustain, the Oil crash in 2015, and the lack of data needed to continue the programme.

In sustaining the dynamism of the ecosystem, the firms have to attain a certain level of competency. As iCentre is an incubation hub, the goal was to create successful companies that would later 'hatch' (M1, M3, M5, M6). The baseline for this is to produce firms that can secure eight figures worth investments from abroad (M3). There were certainly two companies that have made it namely E2 and E4. But even the management (M1) over the years has lamented the lack of success stories. Success is defined not by the number of times an entrepreneur has media coverage, but by the sales and FDI they generated and attracted (M3). And instead of innovating and attaining self-sufficiency, many firms were still dependent on grants or prizes or subsidies. Some entrepreneurs (E2) argued how they saw others becoming 'grant-entrepreneurs', which is a form of doing business by focusing on the next grant instead of doing actual business. Others (E8) became too dependent on government projects instead of branching out to diversify themselves that when the Oil crash came about they had to close shop. The failure to attain self-sufficiency led to the deterioration of their innovation capabilities.

The inability to self-sustain themselves were not deliberate. Sustaining the firm's businesses without the help of government became a challenge for them, given the small Brunei market of 400,000. In Singapore or Malaysia, the market is so large that it is much easier to scale and secure 'rents' (M1, M2). To scale and to acquire rents are crucial in the innovation process because it gives incentives for firms to obtain supernormal profits, as well as to have enough money to risk in carrying out research and design activities. By being dependent on government and being constrained by the small demand-conditions (Porter, 1998) dampened the ability of local firms in iCentre to attain self-sufficiency. Hence innovation could not be sustained over the years, despite how much iCentre could have done. Many tried to go regional, yet it still is a challenge still.

The decision to manage iCentre gravely weakened when the Oil Crash came. Brunei Darussalam as an Oil-based nation was significantly affected by the crisis Brunei is projected to lose \$4 billion by the end of 2016 - equivalent to about 70% of the proposed national budget (Brunei Times, 2016). As a result, the government underwent a major restructuring process that eventually led to the momentary discontinuation of the operations of iCentre. KR Consulting services discontinued and when it does everything in the system failed - the global-local links, local buzz, and industrial policy. Those that stayed within iCentre saw the government contracts that used to come to them dried up. Without a secure income source and a predictable environment, many left iCentre. The innovation system was significantly affected by the government decision, and if this dissertation can add to the literature of change is that government play a significant role in building up infant industries.

In addition to this, there was the lack of data required to into the policy process. The lack of data was highlighted by (M1, M3, M4, M5, M6). Evidence-based data is needed to ensure that a project continually secures support for continued government industrial support. The lack of 'strong' data may have to the cancellation of the iCentre project. There were no public financial details of the firms that the researcher had access to nor were there any publicly available scholarly work that policy-makers can study, except for some public reports in the media or the information given by the management (M1, M5, and M6). It is the aim of this study to highlight the need for data collection accessible to the public for projects to be made for evaluation and decision-making purposes, not just in iCentre but other projects as well.

Next is the failure to produce an inclusive platform (Evans, 1997) that would cater the voice of the firms and management to solve problems that arise that would have kept iCentre evolved along the way. Having such an inclusive platform enables the space to facilitate private and public sector discussions to improve policy-making in the presence of the general public. Had there been an open platform, things would have been different in such that both the firms and management (both internal and upper management) would be more accountable and transparent to each other. Doing so could have averted the mistakes listed in this dissertation. Firstly, a firm wished that the subsidised rental (E3) could have paid through an equity-sharing mechanism as a way to save money. Another firm (E7) wanted the ministerial and general visits to stop dropping by his office, as it interrupted his

productivity. All these problems could have been shared, discussed, and solved had there been an open platform. And these open platforms would give rise to much-needed changes to iCentre in regards to treating the firms and management well in achieving its objective to produce innovation in the long-run

7. Summary and Conclusions

Innovation development is seen to be a vital force in enhancing the competitive advantage of nations. Out of this realisation decision- and policy-makers have carried out programmes to precipitate the innovation process. This dissertation studied the role of iCentre as a plan rolled out by the Brunei Government to achieve this goal. Through the frameworks of global-local links, local buzz, and industrial policy, and a semi-structured qualitative interview of fifteen people, iCentre has, in general, increased the innovation capacity for its firms but only to a limited extent. The conclusions and answers as follow:

1. How effective was iCentre in becoming a global-local link to innovation for firms based in iCentre?

iCentre through KR Consulting networks have managed to devise the programmes (Inspire Talk, Exposure Trips, & In-House consultancy) in place to increase the level of codified and tacit knowledge to develop the core and dynamic capabilities of firms. Many noted the benefits of these programs as to build up their capacities to succeed. However, the programmes set in place could be improved. For the Inspire Talk and Exposure Trips, many commented that they should have stayed longer to reap the knowledge or socially embed themselves into the ecosystem. Otherwise what they learned, with one saying it like an 'Energy Drink'. Furthermore, the programmes cannot substitute self-learning or learning-by-doing, and they must eventually 'hatch' from the incubation hub.

2. How does the local buzz generated within iCentre assist the firms in increasing innovation output?

As for local buzz, there was evidence based on the interviews that it exist. Although the evidence cannot be quantified, it can, however, be interpreted by the interviews. The results have shown that the right human capital concentrated in iCentre generate innovation. The management is involved

so as to select through criteria process which gets to be into the system. The firms played their role by operating in the ecosystem framework, such as discussion in the lobby and engaging in joint-partnerships, etc. Limitations of this are the need to inject new human capital into the ecosystem. The upper management objectives must also be in line with the iCentre and firm ecosystem to ensure that positive decisions are made for the companies, and not vice versa. Also, no matter how much human capital were there, they have to learn the skills themselves and not be dependent on outsourcing so as to generate self-sufficiency at the local level to intensify innovation.

3. How crucial of a role was industrial policy (ICT industry) been in inducing innovation development in Brunei Darussalam?

As for physical support (soft and hard infrastructure), iCentre would not have existed without BEDB. The interviews also noted the usefulness of the infrastructures set in place to commence their businesses. As for financial, this takes in the form of grants or cash prize winnings. Many were attracted to set up in iCentre due to monetary reward, and they subsequently utilised these financials as start-up capital to launch and operate their businesses. As for industrial policy, this takes in the form of the E-Government project initiated by the Brunei government, which brought about many contracting opportunities for the firms in iCentre to secure. Some noted that without these contracts, they would not have survived. The weakness includes the overdependence of private companies to the government, the absence of open policy platforms, and lack of hard and publicly available data to adjust decision-making, contributed to the discontinuity of KR Consultancy Pte Ltd and Star Hub SDN BHD operations in iCentre.

8. Parting Words

iCentre has come a long way since its inception in 2007. It is partly the object of this study to analyse the successes and failures incurred by iCentre in regards to building innovation in the country. It also aims at documenting a Brunei success story, initiated by people who saw things that only a few people did in the past. iCentre is their legacy, and it is this aim of this dissertation to assure readers that the policy worked to a certain extent. This work concludes how iCentre as an example of an incubation hub can enhance innovation development. Using the three theoretical lens of global-local links, local buzz, and industrial policy, I argue that there it can so long as there is the right management with rich global-local links in place, who are committed to devise an environment that promotes the innovation culture populated by the right human capital or firms, and as well as long-term government support to carry out industrial policy in the form of supplying financial and physical infrastructure, as well as general industrial support.

9. Reference

Acs, Z. J., Braunerhjelm, P., Audretsch, D. B., & Carlsson, B. (2009). The knowledge spillover theory of entrepreneurship. *Small business economics*, 32(1), 15-30.

Arrow, K. (1962). Economic welfare and the allocation of resources for invention. In *The rate and direction of inventive activity: Economic and social factors* (pp. 609-626). Princeton University Press.

Auerswald, P., Kauffman, S., Lobo, J., & Shell, K. (2000). The production recipes approach to modeling technological innovation: An application to learning by doing. *Journal of Economic Dynamics and Control*, 24(3), 389-450.

Audretsch, D. B., & Lehmann, E. (2006). Entrepreneurial access and absorption of knowledge spillovers: Strategic board and managerial composition for competitive advantage. *Journal of Small Business Management*, 44(2), 155-166.

Bathelt, H., Malmberg, A., & Maskell, P. (2004). Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation. *Progress in human geography*, 28(1), 31-56.

Bass, B. M., & Avolio, B. J. (1993). Transformational leadership and organizational culture. *Public administration quarterly*, 112-121.

Bathelt, H., Malmberg, A., & Maskell, P. (2004). Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation. *Progress in human geography*, 28(1), 31-56.

Boschma, R. (2005). Proximity and innovation: a critical assessment. *Regional studies*, 39(1), 61-74.

Boschma, R. (2009). Evolutionary economic geography and its implications for regional innovation policy. *Papers in Evolutionary Economic Geography*, 9, 12.

Boschma, R., & Iammarino, S. (2009). Related variety, trade linkages, and regional growth in Italy. *Economic geography*, 85(3), 289-311.

Bowles, S. (2009). *Microeconomics: behavior, institutions, and evolution*. Princeton University Press.

Carey, H. C. (1872). *The harmony of interests, agricultural, manufacturing and commercial*. HC Baird.

Castellani, D., & Zanfei, A. (2007). Internationalisation, innovation and productivity: how do firms differ in Italy?. *The world economy*, 30(1), 156-176.

Chang, H. J. (1993). The political economy of industrial policy in Korea. *Cambridge Journal of Economics*, 17(2), 131-157.

Combes, P. P. (2000). Marshall-Arrow-Romer externalities and city growth. *CERAS wp*, 99(06).

Comin, D. (2010). Total factor productivity. In *Economic Growth* (pp. 260-263). Palgrave Macmillan UK.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative science quarterly*, 128-152.

Cooke, P., Uranga, M. G., & Etxebarria, G. (1997). Regional innovation systems: Institutional and organisational dimensions. *Research policy*, 26(4), 475-491.

Den Hertog, P., Van der Aa, W., & de Jong, M. W. (2010). Capabilities for managing service innovation: towards a conceptual framework. *Journal of Service Management*, 21(4), 490-514.

Dixon, N. M. (2000). *Common knowledge: How companies thrive by sharing what they know*. Harvard Business School Press.

Eastwood, R., & Lipton, M. (2002). Pro-poor growth and pro-growth poverty reduction: meaning, evidence, and policy implications. *Asian development review*, 18(2), 22-58

Etzkowitz, H. (2008). The triple helix: university-industry-government innovation in action. Routledge.

Evangelista, R., Iammarino, S., Mastrostefano, V., & Silvani, A. (2002). Looking for regional systems of innovation: evidence from the Italian innovation survey. *Regional Studies*, 36(2), 173-186.

Frankelius, P. (2009). Questioning two myths in innovation literature. *The Journal of High Technology Management Research*, 20(1), 40-51.

Freeman, C. (1995). The 'National System of Innovation' in historical perspective. *Cambridge Journal of economics*, 19(1), 5-24.

Gary Becker, 1985. *Businessweek*.

Granovetter, M. (1983). The strength of weak ties: A network theory revisited. *Sociological theory*, 1(1), 201-233.

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American journal of sociology*, 481-510.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field methods*, 18(1), 59-82.

Gill, W. J. (1990). *Trade wars against America: a history of United States trade and monetary policy*. Praeger Pub Text.

Hamilton, A. (1791). *Report on manufactures*.

Howells, J. (1999). 5 Regional systems of innovation?. *Innovation policy in a global economy*, 67.

Howells, J. R. (2002). Tacit knowledge, innovation and economic geography. *Urban studies*, 39(5-6), 871-884.

Iammarino, S. (2005). An evolutionary integrated view of regional systems of innovation: concepts, measures and historical perspectives. *European planning studies*, 13(4), 497-519.

Keefer, P., & Knack, S. (1997). Why don't poor countries catch up? A cross-national test of an institutional explanation. *Economic inquiry*, 35(3), 590-602.

Kifle, H., & Low Kim Cheng, P. (2009, September). E-government Implementation and Leadership: the Brunei Case Study. Academic Conferences.

Kline, S. J., & Rosenberg, N. (1986). An overview of innovation. The positive sum strategy: Harnessing technology for economic growth, 14, 640.

Kotsemir, M. N., & Meissner, D. (2013). Conceptualizing the innovation process—trends and outlook. Higher School of Economics Research Paper No. WP BPR, 10.

Krugman, P. R. (1991). *Geography and trade*. MIT press. Chicago

Lawson, B., & Samson, D. (2001). Developing innovation capability in organisations: a dynamic capabilities approach. *International journal of innovation management*, 5(03), 377-400.

Lin, J., & Chang, H. J. (2009). Should Industrial Policy in developing countries conform to comparative advantage or defy it? A debate between Justin Lin and Ha-Joon Chang. *Development policy review*, 27(5), 483-502.

Lissoni, F. (2001). Knowledge codification and the geography of innovation: the case of Brescia mechanical cluster. *Research policy*, 30(9), 1479-1500.

List, F., & Colwell, S. (1856). *National system of political economy*. JB Lippincott & Company.

Li, C. L. J. (2012). The cyberspace in Brunei. *Asian Politics & Policy*, 4(1), 127-13

List, F., & Colwell, S. (1856). *National system of political economy*. JB Lippincott & Company.

Liebowitz, S. J., & Margolis, S. E. (1995). Path dependence, lock-in, and history. *JL Econ. & Org.*, 11, 205.

Lucas, R. E. (1988). On the mechanics of economic development. *Journal of monetary economics*, 22(1), 3-42.

Lundvall, B-Å. (ed.) (1992). *National Innovation Systems: Towards a Theory of Innovation and Interactive Learning*, Pinter, London.

Lundvall, B. Å. (2007). National innovation systems—analytical concept and development tool. *Industry and innovation*, 14(1), 95-119.

Marshall, A. (2009). *Principles of economics: unabridged eighth edition*. Cosimo, Inc.

Mason, M. (2010, August). Sample size and saturation in PhD studies using qualitative interviews. In *Forum qualitative Sozialforschung/Forum: qualitative social research* (Vol. 11, No. 3)

Martins, E. C., & Terblanche, F. (2003). Building organisational culture that stimulates creativity and innovation. *European journal of innovation management*, 6(1), 64-74.

Mazzucato, M. (2015). *The entrepreneurial state: Debunking public vs. private sector myths*. Anthem Press.

Morrison, A. (2008). Gatekeepers of knowledge within industrial districts: who they are, how they interact. *Regional Studies*, 42(6), 817-835.

Morgan, Kevin. "The learning region: institutions, innovation and regional renewal." *Regional studies* 41.S1 (2007): S147-S159.

Muller, E., & Zenker, A. (2001). Business services as actors of knowledge transformation: the role of KIBS in regional and national innovation systems. *Research policy*, 30(9), 1501-1516.

Morrison, A. (2008). Gatekeepers of knowledge within industrial districts: who they are, how they interact. *Regional Studies*, 42(6), 817-835.

Nelson, R. R. (1998). *National innovation systems. Regional Innovation, Knowledge and Global Change* (London: Pinter, 2000), 11-26.

Penrose, E. T., & Pitelis, C. (2002). The growth of the firm: the legacy of Edith Penrose. Oxford University Press on Demand.

Porter, M. E. (1990). The competitive advantage of nations. *Harvard business review*, 68(2), 73-93.

Porter, M. E. (1998). Cluster and the new economics of competition.

Polanyi, M. (1962). Tacit knowing: Its bearing on some problems of philosophy. *Reviews of modern physics*, 34(4), 601.

Putnam, R. D. (1995). Bowling alone: America's declining social capital. *Journal of democracy*, 6(1), 65-78.

Ravallion, M. (2004). Pro-poor growth: A primer. World Bank policy research working paper, (3242).

Ritzer, G. (Ed.). (2007). The Blackwell encyclopedia of sociology (Vol. 1479). Malden, MA: Blackwell Publishing.

Robles, M. M. (2012). Executive perceptions of the top 10 soft skills needed in today's workplace. *Business Communication Quarterly*, 75(4), 453-465.

Rodríguez-Pose, A., & Tijmstra, S. A. (2007). Local economic development in sub-Saharan Africa. *Environment and Planning C: Government and Policy*, 25(4), 516-536.

Rodrik, D. (2004). Industrial policy for the twenty-first century.

Romer, P. (1989). Endogenous technological change (No. w3210). National Bureau of Economic Research.

Romer, P. M. (1989). Human capital and growth: theory and evidence (No. w3173). National Bureau of Economic Research.

Rosenberg, N. (1982). *Inside the black box: technology and economics*. Cambridge University Press.

Romer, P. M. (1994). The origins of endogenous growth. *The journal of economic perspectives*, 8(1), 3-22.

Rychen, F., & Zimmermann, J. B. (2008). Clusters in the global knowledge-based economy: knowledge gatekeepers and temporary proximity. *Regional Studies*, 42(6), 767-776.

Saxenian, A. (2007). *The new argonauts: Regional advantage in a global economy*. Harvard University Press.

Schuster, F. E. (1986). *The Schuster report: The proven connection between people and profits*. John Wiley & Sons.

Schumpeter, J., & Backhaus, U. (2003). The theory of economic development. In Joseph Alois Schumpeter (pp. 61-116). Springer US.

Schumpeter, J. A. (1934). *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle* (Vol. 55). Transaction publishers.

Schumpeter, J. A. (1947) The Creative Response in Economic History. *Journal of Economic History*, Vol. 7 149-159.

Schumpeter, Joseph (1942). *Capitalism, Socialism and Democracy*. New York: Harper and Roe Publishers. p. 82.

Schumpeter, J. A. (1947) The Creative Response in Economic History. *Journal of Economic History*, Vol. 7 149-159.

Singh, J. (2007). Asymmetry of knowledge spillovers between MNCs and host country firms. *Journal of international business studies*, 38(5), 764-786.

Solow, R. M. (1957). Technical change and the aggregate production function. *The review of Economics and Statistics*, 312-320.

Sonn, J. W., & Storper, M. (2008). The increasing importance of geographical proximity in knowledge production: an analysis of US patent citations, 1975–1997. *Environment and Planning A*, 40(5), 1020-1039.

Storper, M., & Venables, A. J. (2004a). Buzz: face-to-face contact and the urban economy. *Journal of economic geography*, 4(4), 351-370.

Storper, M., & Venables, A. J. (2004b). Buzz: the economic force of the city. In *Journal of Economic Geography*.

Teece, David; Pisano, Gary; Shuen, Amy (August 1997). "Dynamic Capabilities and Strategic Management". *Strategic Management Journal*. 18 (7): 509–533.

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences*, 15(3), 398-405.

Von Krogh, G., Ichijo, K., & Nonaka, I. (2000). *Enabling knowledge creation: How to unlock the mystery of tacit knowledge and release the power of innovation*. Oxford University Press on Demand.

Wade, R. H. (2012). Return of industrial policy?. *International review of applied economics*, 26(2), 223-239.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic management journal*, 5(2), 171-180.

Winter, S. G. (2003). Understanding dynamic capabilities. *Strategic management journal*, 24(10), 991-995.

Witt, U. (1997). "Lock-in" vs. "critical masses"—Industrial change under network externalities. *International Journal of Industrial Organization*, 15(6), 753-773.

Zucker, L. G., & Darby, M. R. (1999). Star-scientist linkages to firms in APEC and European countries: indicators of regional institutional differences affecting competitive advantage. *International Journal of Biotechnology*, 1(1), 119-131

Articles

Autodesk (2013) Brunei Economic Development Board Partners with Autodesk to Develop Country's Media and Entertainment Industry. Autodesk <http://www.businesswire.com/news/home/20130116005195/en/Brunei-Economic-Development-Board-Partners-Autodesk-Develop>

Hazair H. (2007) "iCentre to tend 8 incubatees" Brunei Times
http://www.bt.com.bn/business/2007/09/08/icentre_to_tend_8_incubatees.

Ya'akub Said, I. (2008) "iCentre the Best Kind of Support". Brunei Times
http://www.bt.com.bn/home_news/2008/03/27/icentre_the_best_kind_of_support_for_smes

Masli, U. (2009) Take Entrepreneurship career students told. Brunei Times
<http://www.bt.com.bn/news-national/2009/10/21/take-entrepreneurship-career-students-urged>

Ibrahim D. (2012) "Brunei Needs innovation face new challenges". Brunei Times
<http://www.bt.com.bn/news-national/2012/03/27/brunei-needs-innovation-face-new-challenges>

Abu Bakar. A (2013) "iCentre 5 years what defines success"
<http://www.bt.com.bn/2013/01/31/icentre-5-years-what-defines-success>

Abu Bakar. A. (2013) "Tech Park seen boosting innovation biz ventures"
<http://www.bt.com.bn/2013/06/28/tech-park-seen-boosting-innovation-biz-ventures>

Abu Bakar. A (2014) "High tech park to be ready". Brunei Times.
<http://www.bt.com.bn/news-national/2014/03/02/high-tech-park-be-ready-oct>

DARE (2016) "Dare Revitalise iCentre Startup Incubation Hub". Brunei Times.
<http://www.bt.com.bn/business-national/2016/07/09/dare-revitalise-icentre-startup-incubation-hub>

Bandial, Q. A. (2016) "Fiscal deficit may hit nearly \$4b". Brunei Times.
<http://m.bt.com.bn/frontpage-news-national/2016/03/09/fiscal-deficit-may-hit-nearly-4b>

Bandial, Q.A. and Sadikin, A. (2016) Brunei prepares budget cuts. BruneiTimes
<http://www.bt.com.bn/news-national/2016/03/02/brunei-prepares-budget-cuts>

NUS (2008) Brunei's first iCentre launched in collaboration with NUS
http://newshub.nus.edu.sg/headlines/0308/icentre_26mar08.php

Appendix I: Company and Interview Details

Interview Code	Firm Name	About	Current Firm in iCentre	Contact Number & Address Details
E1	Rafiqun IT Services	Wireless and telecommunications services IT company.	No Longer Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Berakas BB3713 Brunei Darussalam Tel : +673 8152341
E2	Expansys Technologies / Chrends SDN BHD	Mobile apps and website development company.	No Longer Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Berakas BB3713 Tel: +6732382616
E3	SocialBuzz Advertising	Online discount retail and advertising company. The 'Groupon' of Brunei.	Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Berakas BB3713 Tel: +673 238 2616 Email: support@socialdeal.com.bn
E4	Infindo and QQeStore	Mobile apps, website development, and online store company.	No Longer Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Berakas BB3713
E5	Lighthouse Ideas Co.	Proximity and sensors technology starting with the emerging Bluetooth Low Energy.	Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Berakas BB3713 Tel: +673-8299833
E6	Lighthouse Ideas Co.	Proximity and sensors technology starting with the	Active	Block B28 Simpang 32-37 Kampung Anggerek Desa

		emerging Bluetooth Low Energy.		Jalan Berakas BB3713 Tel: +673 874 1931
E7	HoCo Creative	Online digital marketing agency.	No Longer Active	UNIT 22, First floor, Block B, Muhibbah Complex II Menglait, Jln Gadong, BSB BE 3978 Tel: + 673 8 773 448
E8	Ambuyart Animations	2D and 3D Animations Company.	No Longer Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Berakas BB3713 Tel: +673 818 1901
E9	Weekend Warriors	Sports Apps Booking Services	Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Berakas BB3713
M1	iCentre (KR Consulting Pte Ltd)	KR Consulting Pte Ltd is an NUS business unit that provided consultancy services in iCentre.	No Longer Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Berakas BB3713
M2	iCentre (Star Incubator SDN BHD)	Star Incubator is Brunei-registered company that managed iCentre.	No Longer Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Berakas BB3713
M3	iCentre (Star Incubator SDN BHD)	Star Incubator is Brunei-registered company that managed iCentre.	No Longer Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Berakas BB3713
M4	iCentre (SUHBE Co)	A locally registered company that is currently managing iCentre.	Active	Block B28 Simpang 32-37 Kampung Anggerek Desa Jalan Breakas BB3713


M5	DARe (Darussalam Enterprise)	A statutory body of the Brunei Government tasked at managing iCentre. Prior to 2016, iCentre was managed under BEDB.	Active	Darussalam Enterprise (Dare) Design & Technology Building, Simpang 32-37, Brunei BB3713
M6	DARe (Darussalam Enterprise)	A statutory body of the Brunei Government tasked at managing iCentre after BEDB. Prior to 2016, iCentre was managed under BEDB.	Active	Darussalam Enterprise (Dare) Design & Technology Building, Simpang 32-37, Brunei BB3713

Appendix II: Questions for Firms I

1. Could you tell me a bit about the business you set up whilst you were operating in iCentre (also the year when you started)? How is the business doing now?
2. What are some of the biggest factors that motivated you as an entrepreneur to set up the business? What is the overall mission?
3. How has iCentre assisted you in your quest to setting up and operating the business? Could you provide specific examples of the support given to your business? (grants, rent space, or sponsored/subsidised flight to attend events such as in Silicon Valley or Singapore, etc.)
4. Has iCentre been a core facilitator for networking, partnership, or knowledge exchange for you with other ASEAN partners or organisations (such as NUS located in Singapore)?
5. How has the networks across ASEAN been helpful in your firm's capacity to innovate or to produce new products and services?
6. What do you think iCentre can further improve on in its efforts to build up the innovation and start-up community Brunei?
7. From your opinion, what are three major weaknesses that should be resolved by iCentre in promoting entrepreneurship and innovation during and after your tenure? How has this weakness affected your business?
8. On a scale of one to ten, how has your prior education (college/uni degree or postdoc) equip you with the skillsets or knowledge needed for you succeed in business? If so how did it contribute to your success?
9. How has post-iCentre operations been like for your business?
10. What are some of the major challenges you faced as an entrepreneur while you were at iCentre then? Some examples may include financing, human capital, and/or affordable space.
11. On hindsight, would you have scaled up and grown to the size of your company today had you operated without iCentre's support in the past?
12. Could you list three contributing factors that that made iCentre especially helpful for your business' expansion and success?
13. Do you have additional comments which would be of help for this dissertation?

Appendix III: Questions for Firms II

1. Could you tell me a bit about how iCentre will play a part in promoting innovation, SME development, & entrepreneurship in Brunei under BEDB's/DARe's direction?
2. What are some of the biggest factors do you think that will motivate the entrepreneurs/vendors to take part in iCentre's programmes (incubation programme, business plan competition, innovate forum, workshops)?
3. How would iCentre be able to assist the entrepreneurs/vendors quest in setting up, operating, and/or expanding their respective businesses in the years ahead?
4. Could you provide specific examples of the types of support that would be given to the businesses by iCentre and how they could succeed from this support? (grants, rent space, or sponsored/subsidised flight to attend events such as in Silicon Valley or Singapore, etc.)
5. Would iCentre continue to become a core facilitator for networking, partnership, or/and knowledge exchange for its entrepreneurs/vendors with regional partners (ASEAN) & international networks (Silicon Valley) as it did when it was under BEDB?
6. Could you share your experiences and observations working with iCentre in the past (such as being the judge for the IGNITE competition)?
7. From your opinion, what are three major shortcomings faced by iCentre in promoting entrepreneurship and innovation in past and present? How have these shortcomings affected iCentre's entrepreneur/firms? How can they be resolved?
8. What are some of the major projected challenges entrepreneurs/firms would face while they were at iCentre (some examples may include lack of financing, human capital, ecosystem, and/or resources)?
9. What is the core strategy for iCentre in its role to build up entrepreneurs and innovation moving forward under DARe's direction?
10. Do you have any further comments regarding iCentre and its stakeholders in general?

Three thick red lines originate from the top left corner and extend diagonally across the top of the page towards the right.

"It (iCentre) is a very special project, and it's for a very special group of people — our own men and women with great ideas and lots of courage who want to prove themselves in the business world,"

His Royal Highness Prince Mohamed Bolkiah, the Minister of Foreign Affairs and Trade (Brunei Times, 2008)

