

CLUSTER INITIATIVE DEVELOPMENT PROCESS IN MALAYSIAN
POLICY-LED CLUSTER

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TO MY LOVING FAMILY:

Mother: Saeeda Khanam

Wife: Shazia Batool, Son: Shayan Hassan and Daughter: Rojan
Bint Hassan

“I can never make it without your endless love and support”

In Loving Memories

My father: Muhammad Hassan Ansari

With Love and Respect

My entire families and friends

.

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ABSTRACT

Cloning of successful clusters like Silicon Valley with the anticipation that externalities produced will make firms competitive and create a buzz for the whole cluster, resulted in an outbreak of clusters throughout Asia. However, the literature has not adequately addressed whether and how cluster initiatives or cluster programs are developed in policy-led clusters, a cluster built from the scratch by the government. Traditionally, the cluster literature has focused on the spontaneous cluster rather than policy-led clusters. In fact, cluster initiatives, which are the organized actions to enhance the competitiveness of clusters, have recently gained the attention of researchers. The eminent researchers recommend that the success of initiatives depends on the effective cluster organization, public-private collaboration and firms' active role in the cluster governance. In response to the scarcity of cluster literature on these dimensions and dearth of scholarly work about the policy-led clusters, this research attempts to generate fresh insights into how cluster initiatives are developed in policy-led clusters. Multimedia Super Corridor (MSC), as a case study was selected for two key reasons. Firstly, it fits in the definition of a policy-led industrial cluster, and secondly, a plethora of initiatives is offered to the firms located in this cluster. An interpretivist paradigm with an embedded single-case study using Modified Delphi method and in-depth interviews were conducted to get the views of 13 experts and 17 informants from MSC firms and Multimedia Development Corporation (MDeC). The data analyzed generated qualitative themes. It was found that the cluster faced a myriad of challenges namely: firm's dependence on government support, bureaucracy, talent mobility, lack of interest of venture capitalists, lack of inter-firm collaborations and knowledge sharing, lack of trust, as well as absence of clusterpreneur and quality workforce. Moreover, the developmental state model of governance practiced in Malaysia over the years had been instrumental at the beginning of the cluster's life cycle. Admittedly, but at this stage of the cluster life cycle, there is a need to activate social cohesion and innovation related collaboration among the firms. This research recommends that MDeC must adopt administrative decentralization because of the diminished capacity of the bureaucrats in the face of high-end technology development, and to effectively utilize the strategic knowledge through collaboration and sharing as well as engagement with companies located in the MSC. The originality of the research lies in the proposed framework of a collaborative regime based on negotiated and synergistic public-private alliance for cluster initiative development.

ABSTRAK

Pengklonan kluster yang berjaya seperti Lembah Silikon dengan jangkaan bahawa persekitaran luaran yang dihasilkan akan menyebabkan firma-firma berdaya saing, mewujudkan pusat tumpuan kluster dan penyebaran perluasan kluster ke seluruh Asia. Namun demikian, sorotan kajian kurang memberikan perhatian tentang cara inisiatif kluster atau program kluster dibangunkan sama ada oleh polisi kluster yang dasar terpinpin atau kluster yang dibangunkan dari awal oleh kerajaan. Secara tradisinya, sorotan kajian memberikan tumpuan kepada kluster spontan berbanding dengan kluster dasar terpinpin. Malahan inisiatif kluster yang merupakan tindakan yang terancang untuk meningkatkan daya saing kluster hanya baru-baru ini mendapat perhatian oleh para penyelidik. Para penyelidik terkemuka merumuskan bahawa kejayaan inisiatif-inisiatif ini bergantung kepada organisasi kluster yang efektif, kerjasama antara sektor awam dengan swasta dan peranan aktif firma dalam urus tadbir kluster. Sebagai tindak balas kepada kekurangan kajian literatur dimensi kluster dan kekurangan kajian ilmiah tentang kluster dasar terpinpin, kajian ini cuba menjana pandangan baharu tentang inisiatif kluster yang dibangunkan dalam kluster dasar terpinpin. Koridor Raya Multimedia (MSC) dipilih sebagai kajian kes kerana dua sebab utama, iaitu pertama, MSC menepati takrif kluster dasar terpinpin perindustrian, dan kedua, pelbagai inisiatif yang ditawarkan kepada syarikat-syarikat yang berada dalam kluster ini. Paradigma 'interpretivist' yang bersandarkan satu kajian kes menggunakan kaedah Delphi yang diubahsuai dan temu bual secara mendalam telah dijalankan untuk mendapatkan pandangan daripada 13 orang pakar dan 17 orang responden daripada syarikat-syarikat MSC dan Perbadanan Pembangunan Multimedia (MDeC). Data dianalisis secara kualitatif. Analisis yang dijalankan mendapati bahawa kluster ini menghadapi pelbagai cabaran antaranya kebergantungan firma kepada sokongan kerajaan, birokrasi, mobiliti bakat, kekurangan minat daripada pemodal teroka, kurang kerjasama dan perkongsian pengetahuan antara firma-firma, kurang kepercayaan, ketiadaan kluster niaga dan tenaga kerja yang berkualiti. Selain itu model pembangunan tadbir urus negeri yang diamalkan di Malaysia sejak bertahun-tahun mempengaruhi kitaran awal hidup kluster ini. Sungguhpun demikian pada peringkat awal kitaran hidup kluster terdapat keperluan untuk mengaktifkan perpaduan sosial dan kerjasama dalam inovasi dalam kalangan firma. Kajian ini mencadangkan supaya MDeC mengamalkan pemusatan pentadbiran kerana kekurangan keupayaan birokrasi untuk menghadapi pembangunan teknologi tinggi dan pengetahuan strategik melalui kerjasama dan perkongsian serta penglibatan syarikat-syarikat yang berada di MSC dapat digunakan secara berkesan. Keaslian penyelidikan ini terletak dalam kerangka kerja yang mencadangkan gagasan kerjasama berdasarkan perundingan dan sinergi pakatan awam-swasta untuk pembangunan inisiatif kluster.

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LIST OF ABBREVIATIONS

CDP	-	Cluster Development Programs
EPU	-	Economic Planning Unit
ETP	-	Economic Transformation Program
FDI	-	Foreign Direct Investment
GDP	-	Gross Domestic Production
GTP	-	Government Transformation Program
ICT	-	Information and Communication Technology
IHL	-	Institutions of Higher Learning
ILO	-	International Labor Organization
IT	-	Information Technology
KPI	-	Key Performance Indicators
MIT	-	Massachusetts Institute of Technology
MOHE	-	Ministry of Higher Education
MOSTI	-	Ministry of Science, Technology and Innovation
NEM	-	New Economic Model
NEP	-	New Economic Policy
NSI	-	National System of Innovation
OECD	-	Organization of Economic Co-operation and Development
R&D	-	Research and Development

RI	-	Research Institutes
SRI	-	Strategic Reform Initiative
UNDP	-	United Nations Development Program
UNESCO	-	United Nation's Educational, Scientific and Cultural Organization

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This research is an inquiry into cluster initiatives (CI) or cluster programs developed within Malaysian policy-led ICT cluster, the Multimedia Super Corridor (MSC), for enhancing its growth and competitiveness. As a newly industrialized country, Malaysia is aiming at transforming to the knowledge economy; therefore, the role of industrial cluster is realized. However, no significant academic work is visible about the programs developed for the firm's growth and competitiveness in various established clusters of Malaysia. This research is an attempt to inquire about various initiatives taken by cluster/cluster organization (CO); to explore the purpose and characteristics of these initiatives; the process of development and the broad outcomes of these initiatives. Furthermore, the collaborative dynamics of stakeholders during the program development process is studied in the light of collaborative governance theories and findings of Global Cluster Initiative Surveys (GCIS) 2003 and 2005. Accordingly, this research recommends a framework for cluster initiative development in policy-led clusters.

The current chapter introduces the concept of policy-led cluster, cluster initiatives and issues highlighted by the previous studies about this cluster. It also presents the background of research, its purpose, objectives and justification of the research along with research settings. Figure 1.1 exhibits the outline of chapter one.

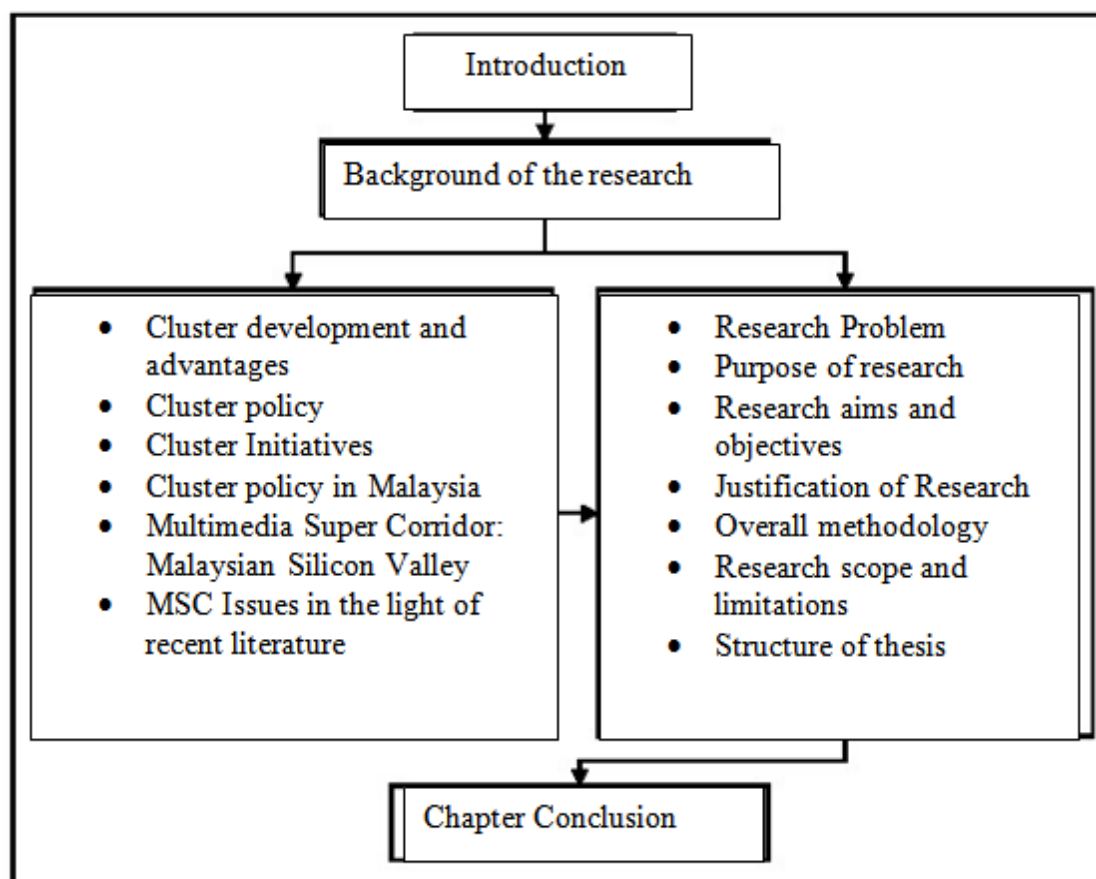


Figure 1.1 Outline of Chapter One

1.1.1 Background to the Research

The processes of “trade liberalization” and “globalization” have resulted in countless challenges and opportunities for firms. Two major challenges are; amplified customer expectations and competition among companies. In response to these challenges, companies on one hand are transforming their operations to become

more competitive (Fassoula, 2006) and on the other hand, are developing strategies to get synergy through cooperative relations with other firms (Karaev *et al.*, 2007). In return, the global markets have offered a wealth of opportunities for SMEs (Gradzol *et al.*, 2005). In this background, governments realized the role of SMEs for national competitiveness and took various initiatives to nurture the SMEs. One of such measures is a cluster/cluster policy development. In the next section, main features and potential advantages of the clusters are discussed.

Both literature and practice in developed and developing countries responded to the above-mentioned challenges through cluster development (Enright, 2000; Ketels, 2003; Saxenian, 2003; Sölvell *et al.*, 2003; Van der Linde and Porter, 2002). Since the last decade, clusters have been practiced as one of the techniques to outdo the size limitations of SMEs and as an essential instrument for improving firm's productivity, innovativeness and overall competitiveness. Although, academic work on clusters date back at least as far as Marshall (1920) yet, Porter (1990; 2000) triggered a massive wave of scholarly work about the spatial clustering and cluster policies. Nevertheless, defining cluster is still complicated (Lundequist and Power, 2002).

According to Porter (1990), who is believed to be one of the prominent authorities in the field (Karaev *et al.*, 2007) defined it as, "Geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standards agencies, and trade associations) in particular fields that compete but also co-operate". Other authors support that clusters are geographically bounded concentrations of interdependent firms, which should have active channels of business transactions, dialogue and communication (Rosenfeld, 1997; Feser and Luger, 2002). The United Nations International Development Organization defines cluster as the sectoral and geographical concentrations of businesses that produce and sell an array of related or complementary products and face common challenges and opportunities (UNIDO, 2000). Various other authors have highlighted the concentrations or agglomeration benefits to the firms like availability of specific suppliers of raw materials and components, access to a pool of sector-specific skilled

human capital and development of external economies in technical, managerial and financial matters (Brenner, 2004; Hill and Brennan, 2000; Bresnahan *et al.*, 2005; Enright, 1996). Thus, the salient features of the clusters are geographical proximity, related industries and linkages among the cluster's actors.

1.1.2 Policy-led Clusters

In a struggle to determine the appropriate role of the government in cluster development, scholars are distinguishing the cluster as spontaneous and policy-led clusters. Chiaroni and Chiesa (2005) proposed two arrangements of clusters in Biotech industries: (a) spontaneous clusters, that are the outcomes of the concurrent presence of enabling factors and (b) policy-driven clusters, that are prompted by the strong obligation of government to set up the necessary conditions for cluster creation. In the same vein, Su and Hung (2009) conducted a longitudinal case study on two clusters; Bay Area in USA and Zhang jiang Hi-Tech (ZJHT) Park in China; the former is spontaneous and later is the policy-driven cluster. They concluded that although the recipe of success of these two clusters is the human and financial capital but the difference lies in the process of generating and distributing these resources (see Table 1.1). For instance, there is a mark difference in entrepreneurship, social capital and network designs. Su and Hung (2009) observed that spontaneous clusters are located in the Western countries and policy driven clusters are largely concentrated in the Asian countries. Their study accomplishes that spontaneous clusters have the capacity to evolve through venture capitalists and social capital structured by the entrepreneurs. This continuous evolution leads to the tight networking in the spontaneous clusters. In the Bay Area, robust entrepreneurship and social capital encourage tight networking. In contrast, ZJHT Park, which is planned by the government, has embryonic entrepreneurship and is deficient in social capital thus, has loose networking.

Table 1.1: Comparison between the spontaneous and policy driven cluster

Cluster Type	Spontaneous Cluster	Policy Driven Clusters
Example	Bay Area, USA	ZJHT Park China.
Origin	Founded by Genentech: venture started by the scientist and venture capitalist 1976.	Government Planned area 1996.
Growth/Success Factors		
Human Capital (Scientific)	The strong scientific capital provided by leading universities.	Policy based workforce attraction locally and abroad.
Financial Capital	Abundant government and venture capital financing.	Government funded.
Entrepreneurship	Excellent entrepreneurship.	Emerging Entrepreneurship.
Social capital	Valuable Social capital for innovation and competitiveness.	Quanxi (good connections with the right people)
Networking	Tight networking among biotech companies, venture capital and research institutions, direct link among the bio- tech companies established.	Loose networking among the actors. Firms are intended to establish a relationship with the local government.

Source: Adapted from Su and Hung's (2009)

Similarly, Van der Linde (2002) conducted worldwide cluster meta-study of a sample of 186 clusters, and found only one example of conscious government action for the establishment of the cluster, which is Hsinchu Science Park Taiwan, established as a pure government initiative to foster electronic industry. However, Feser *et al.* (2008) admit that building clusters is now widely practiced as a form of cluster policy but it is not free from the risks, for example, policy lock-in often occurs when the governments are intervening too much. Therefore, he suggested that cluster concept might be used to implement innovation policies so that discrete spatial cluster emerges itself. While Aragón *et al.* (2011) suggested that state level of association should correspond with the targeted level of improvement in the cluster. For example, if the agglomeration of firms does not exist then the rationale of intervention is dubious, conversely, if an agglomeration exists and there is call for policy support then government involvement may enrich social capital and stimulate

collaboration among the firms and institutions, through various measures. Although, it is observed that for robust clusters, these policies may cause the redundancy of activities.

Nonetheless, so far the researchers are not able to answer unambiguously, whether the government should intervene in cluster development or limit their role (Jungwirth and Mueller, 2010). In fact, there is evidence of both, i.e. on a substantial positive impact of public subsidy on cluster performance (Falck and Kipar, 2010) and on a negligible and insignificant impact on innovation and growth (Enright, 2003; Martin, Mayer and Mayneris, 2008). Meier zu Köcker (2008) explained that, with regard to clustering benefits of reduction in cost through labor pooling or technology sharing, and innovation, the policy-led or top-down clusters perform worse than bottom-up clusters. However, Kiese (2008) warned that top-down cluster initiatives suffer from a theory deficit in conceptualizing them but overall, the role of the state is still considered relevant in the knowledge based global economy (O'Neill, 1997; Douglass, 1998; Brenner *et al.*, 2003; Olds and Yeung, 2004).

Above studies indicate that clusters can both emerge through the market forces or may be the result of planned government actions. Nonetheless, firms located in both types of clusters differ based on entrepreneurship level, linkages, social capital and financial dependence. Furthermore, there is scant research work done about the configuration of policy-driven clusters.

1.1.3 Cluster Initiatives

Sölvell *et al.* (2003) defined cluster initiatives (CIs) as the organized actions to enhance the competitiveness of the cluster by involving key cluster actors. Therefore, cluster based policy programs could be mentioned as CIs (Asheim *et al.*, 2008). Similarly, Giuliani and Pietrobelli (2011) also termed CIs as cluster development programs (CDPs). In Europe, CIs grew and flourished in 1990s, either

by the national or regional governments or more often by the private firms, in order to enhance the attractiveness of the region, while in the developing countries, it has become the central part of industrial, regional and innovation policies (Sölvell *et al.*, 2003). Literature illustrates that well-crafted cluster programs and initiatives can act like a “turbo” on mature clusters and are the ‘lubricants’ that smooth the engine of cluster dynamics to operate at higher velocity. However, usually cluster initiatives begin as a project to address explicit problem and over the passing time may take a permanent organizational form. These initiatives promote the regions by improving the image of the entire sector, attracting new suppliers and creating new jobs. Generally, all initiatives have members from firms and related organizations (public, private and academic); a cluster organization (CO) with office; cluster facilitator; website and governing body. CO is financed through international/ national/ regional/ local government fund or by the member fee. Fundamentally, there is a slight distinction between the cluster initiatives and cluster organization; cluster initiatives are about the process of cluster related actions while the cluster organization is the organizational setup for carrying out the tasks (Lindqvist, 2009).

According to the Global Cluster Initiative Survey (Sölvell *et al.*, 2003), CIs involve range of objectives, from common to rare and narrower to broad. Based on the statistical analysis, they are grouped into six segments (Sölvell *et al.*, 2003):

- a) **Research and networking:** Includes, information gathering, sharing and publishing cluster reports. Networking of firms for seminars and short courses.
- b) **Policy action:** Lobbying for creating a forum of discussions and dialogues about improvements in the clusters among industries, scientific institutions and government.
- c) **Commercial cooperation:** Comprise of joint purchasing, consulting, market intelligence and research, lobbying for getting the finance for the initiative and export promotion.
- d) **Education and training:** Workforce development and management training.

- e) **Innovation and Technology:** Embraces improvement in production process, technology transfer, setting technology standards and observing technical trends.
- f) **Cluster expansion:** Involves creation of the brand image, attracting FDI, incubator services and promotion of spin-offs.

A study report on the CO and initiatives, the Global Cluster Initiative Survey (2005) revealed that there is a growth in the formation of cluster organizations and cluster initiatives since 1996, with the aim to enhance the economic advantage of the clusters. Even though the importance of cluster policies and initiatives for the cluster competitiveness is visible in the literature, the studies on cluster management and collaborative governance dimension in cluster literature are yet limited (Kiese, 2008 and Lindqvist, 2009).

The CIs may originate from Top Down through the national government efforts like Vinnvaxt program of Sweden or may be the result of Bottom Up initiative designed by the firms, academia or the local public actors without the direct dependence on the central government (Sölvell, 2008). These initiatives might be originated as a purely government driven program or in other cases joint activity of the cluster participants that are later joined by the government. Furthermore, cluster initiatives are dynamic and tend to evolve, therefore, are more a process than an outcome. Therefore, PricewaterhouseCoopers (2011) in their report on the cluster management excellence opined that attaining cluster excellence (cluster growth, value addition, innovation and productivity) is contingent on the excellence of the cluster management process. Cluster management can be interpreted as, “the organization and coordination of the activities of a cluster in harmony with certain strategy in order to accomplish clearly defined objectives”. Thus, cluster management excellence refers to the organized efforts for the accomplishment and prolongation of cluster excellence. Cluster management excellence primarily depends on the strength and competence of the cluster organization.

As stated in the literature, CIs are context sensitive and therefore, must be developed according to the local political and industrial traditions. OECD’s (2011) report on the regions and innovation, strongly recommends that early engagement

with the private sector should be ensured while developing a cluster related policy; this will lead to more effective strategy development. The most observable pitfall while managing cluster is that the cluster manager is not trained enough to develop this engagement and to understand the challenges faced by the firms and cluster. Roelandt and den Hertog (1999) advised that in order to foster more engagement, cluster policies should not be government led rather the initiatives should be market-induced and market-led, whereby government must assume the role of “catalyst” or “broker” rather than taking a direct lead. Cluster actors engagement can be fostered in a superior manner only when initiatives are not led directly by the government (Sölvell, 2008; OECD, 2011 and Sölvell, *et al.*, 2003). In addition to this, Sölvell *et al.* (2003) indicates that clusters often fail or stagnate in their life cycle due to the lack of consensus and a vision. They asserted the need of more awareness about the knowledge of clusters and cluster initiatives among the cluster actors as their study found that it is the main obstacle to the common framework development.

Furthermore, little empirical work has been done to investigate the cluster initiatives and cluster organizations (Huber, 2012). In the same vein, Kiese (2008) noticed that a quantitative survey of all conceivable cluster policies and an evaluation of their impacts are still missing. Similarly, according to Lindqvist (2009), only two quantitative studies have been accomplished on the cluster initiatives namely Global Cluster Initiative Survey (GCIS 2003) and GCIS 2005. The GCIS-2003 (Sölvell *et al.*, 2003) examines 250 cluster initiatives worldwide and GCIS-2005 (Ketels *et al.*, 2006) have synthesizes 1400 cluster initiatives. Clusters' Red book (Sölvell, 2008) and the Clusters White book (Andersson *et al.*, 2004) offer as a seminal work on cluster initiatives, in particular and for clusters evolution, in general.

Above sections provided an overview of the concepts of cluster, cluster initiatives and policy-led clusters. It is highlighted that only scant work is available on cluster initiatives and cluster initiative development process. However, this limited work emphasizes that for effective cluster policy the cluster actors must coordinate like a public private partnership for developing the initiative framework. The initiative development should be market-led and governed by the competent CO, primarily steered by the firm's representative or ‘*clusterpreneur*’. It is asserted that

awareness about the cluster and its initiatives is critical for the development of the effective CIs. The following sections describe the cluster policy practices in Malaysia and introduce the case study and issues attached to it.

1.2 Key Issues Impeding Malaysian Economic Growth

In pursuit to achieve the status of a developed nation by 2020, Malaysian government chose policies through mix-and-match, from redistributive strategy to the neoliberal policies. From 1965 until 1985, the policies were inclined towards the import substitution, Free Trade Zones (FTZs), joint venture projects and Bumiputera enterprises. From 1986 until year 2005 exports were promoted, equity constraints were relaxed and focus was shifted to technology transfer, value addition and cluster development. Since 2006, knowledge economy, cluster development and services export are at the priority list until the current regime (Gomez, 2009).

In spite of impressive rank of 12 in ‘doing business/business friendliness’ criterion (World Bank report 2013), the Malaysian government is still being criticized on its partiality and on prevailing bureaucratic control with the notion of “government know the best mentality”. The academic studies are still ‘finding faults’ about the scarcity of human resource and skill development, deficiency of technology capability and patenting capabilities, low absorptive capacities among local firms, competitiveness threat from China, India, Singapore, Taiwan and Korea, lack of interface between academic and the industry, absence of local entrepreneurial accomplishments, dearth of effective monitoring and assessment mechanisms, and lack of R&D support resulting in middle income trap. For example, Rasiah (2005) warned that electronics firms in Malaysia are facing the challenges of foreign MNCs hegemony due to local electronics firm’s deficiency in technological absorption capacity and the linkages to move up the value chain; lack of critical mass for stronger integrated production system; lack of local innovation; lack of skilled

human capital; electronic firms located away from Penang are facing a problem of inter firm networking and finally, lack of market development capabilities.

The origin of above mentioned deficiencies may be traced in the paucities of the overall economy of the country, as Axèle (2008) identified that the weaknesses in the Malaysian economy are due to the absence of local entrepreneurial accomplishments, a serious deficiency of pool of skilled workers, and the sluggish process of consolidating training policies. Kuppusamy *et al.* (2009) suggested that Malaysia in order to derive the benefits of knowledge economy must take some policy measures regarding delivery of improved financial support to the private sector (i.e. ICT linked investments), nurture greater interface between academia and the industry and superior sustenance to R&D activities. Similarly, Saleh and Ndubisi (2006) mentioned current domestic and global challenges confronted by the Malaysia as: i) exaggerated world-wide competition particularly a competition from other producers like China and India; ii) inadequate competence to meet the challenges of market liberalization and globalization; iii) limited ability for technology management and knowledge acquisition; iv) low productivity and quality output; v) shortage of skills for the new business environment; vi) limited access to finance and capital; vii) high cost of infrastructure; and a general lack of knowledge and information. Correspondingly, Govindaraju and Wong (2011) based on their comprehensive work on patents of Malaysian local companies concluded that:

- i. Local firms are found to be engaged in incremental innovation of product or process modification rather than radical innovation.
- ii. Malaysian firms are incapable of improving technological sophistication. The manufacturing activities do not move beyond the assembly and simple manufacturing.
- iii. Malaysian firms are suppliers to MNCs and find difficulty in supporting them to high end of the value chain. This is due to the lack of supporting facilities in Malaysia, which in turn is an obstacle for the attraction of FDI.
- iv. Competitors as China, India and Singapore do not feel technological threats from Malaysia thus they are getting first mover advantages in the international market.

- v. Lack of patents show that there is lack of capabilities to generate new ideas. There is both a lack of incentives and lack of awareness of the importance of patents in local firms.
- vi. The Malaysian technological advance is dependent upon FDI; However, MNCs are taking the advantage of local resources.
- vii. Lack of investment in R&D and human capital development.

Although Malaysia has the well-established basic infrastructure, yet, it is lacking the high-tech endowments that are critical for resident's patenting capabilities. Likewise, low absorptive capacities among local firms were also seen as a weakness. Even though over the years the Malaysian government has taken steps to enhance the innovative activity, little is achieved in terms of patent take-ups in Malaysia. Additionally, Burhanuddin *et al.* (2009) researched small and medium food processing companies in Malaysia and concluded that there is an absence of a comprehensive policy framework for SMI development, lack of coordination among too many agencies, lack of monitoring and evaluation of the SMI progress, difficulty to access financial and loaning facilities, underutilization of technical assistance, advisory services and other incentives.

Onoparatvibool (2011) has done a comparative study on the clusters of Taiwan, Thailand and Malaysia. The respondents identified that generally the Malaysian electronics industry does not qualify for the academic term of "cluster" particularly with regard to networking and linkages between firms and non-firm actors. The interaction is restricted only to the usual production related linkages; joint efforts geared towards the common goal of cluster development are exceptional. Unpredictably, several important firms and academic institutions were even unacquainted with the concept of 'cluster development', in spite of the fact that the term and its application is specified in the Industrial Master Plan (IMP2) in 1996 and currently IMP3 (2006-2020). Nevertheless, the electronics industry in Penang exhibits some features of a cluster.

Harmonious to the above findings, national survey of research and development (2008) (Available at: <http://www.mastic.gov.my>) published by Malaysian Science and Technology Information Center (MASTIC) indicated

external and internal factors limiting R&D activities in government agencies and Research Institutions (GRI), Institutions of Higher Learning (IHL) and Private Sector. These factors include; lack of proven analytical skills, limited time due to administrative work, lack of skilled R&D personal, lack of infrastructure for R&D, poor reward system, delay in fund management, limited financial resources, lack of R&D policy, delayed decision making, poor R&D management, lack of commitment by the top management, inadequate market research, difficulty in finding the private and public collaboration and lack of technological capability.

Thus, the above review of the relevant literature describes current challenges faced by the firms in Malaysia. It is evident that on various fronts, regardless of the government's policies and actions, the problem subsists. This overall national economic context has affected the ICT cluster of MSC, which is embedded in it. The recent literature has indicated that firms in MSC have low entrepreneurial drive, they lack in sharing knowledge and collaborative activities, lack of U-I linkage and the sustainability of the firms is dependent on the continuous government support. Following paragraphs will describe the results of evaluation studies conducted primarily on Multimedia Super Corridor (MSC). Since MSC is the policy-led ICT cluster and taken as a case study for this research, therefore, it is reasonable to highlight the problems faced by the firms in this ICT cluster.

1.2.1 Previous Studies on MSC

Robles (2012) considers MSC as the most aspiring display of state-led development, which had both economic and political motives. The Malaysian government realized that in order to achieve vision 2020 they should not remain mere importers of technology rather they should aim to become the developers of technology (Huff, 2002; Bunnel, 2002). However, Bunnel (2002, 2004) discussed in his work in planning stages of the MSC, that the project was not perceived in purely technical/economic terms aiming to attract the investment for the IT industry; rather

the whole development embraced a new ways of “intelligent living”, influencing wider societal development of Malaysia.

Academic studies on MSC indicated that between the period of 1996-2005, 60% of the firms were located outside the legal boundaries of the MSC which shows that MSC fails on its own terms to be a cluster as such (Lepawsky, 2009). He revealed that no evaluation study about the presence, absence, strength, or weakness of economic linkages between MSC firms is available. Other studies indicated that interactive relationship or networking is lacking in MSC therefore, knowledge production and sharing is absent. Furthermore, the decision making system is fragmented therefore, bureaucratic culture prevails (Malairaja, 2003). It is in line with the findings of Best and Rasiah (2003), who observed that networking among the local firms or between the MNCs and local firms is not developed yet in MSC. Several foreign companies have sited offices in the MSC, but have to start any significant operations. Despite offering attractive incentives for the immigrants as labour, the shortage of human capital has continued to be a basic problem. MSC location could have been near already established electronic cluster of Penang rather than the center of the Klang Valley (Best and Rasiah, 2003).

For the same reason, Wang (2000), observed that MSC cluster is strong in “tangibles” like institutional infrastructure, FDI and administration, nevertheless, relatively weaker in venture capital, domestic and overseas market access, support from academia/institutes, and accessible talent. In the same vein, Fleming and Soborg (2002) argued that ICT related multinationals are skeptical about Malaysian Knowledge Economy particular about the success of MSC. These MNCs consider incentives less attractive when they have to incur huge cost to train the knowledge workers.

Likewise, Wahab (2003), while assessing the first phase of MSC project, observed that (i) there is a breakdown of communication, as the linkage between the university and industry is very weak (ii) openness and transparency regarding the tendering of the contract is questionable and dubious (iii) there is a lack of trust and sharing and (iv) lack of support to SMEs in the form of testing and marketing of the products. In this connotation, the contribution of Malairaja (2003) is noteworthy,

especially about the political motivation concerning the spatial aspects of the MSC project. He argued that MSC's integration into the framework of national economy for the generation of the spin-off benefits is far from adequate. He noted that the commercialization of the research generated by the university is not sufficient to foster the research environment in the cluster. A recent perceptive work by Richardson *et al.* (2010) on MSC highlighted the following points:

- a) Firms mentioned that main attraction for joining MSC was the financial incentives offered to the MSC-Status firms like tax-breaks. Other appeals were marketing and R&D support.
- b) Respondents admitted that they enjoyed the benefits of 'representation' in the international exhibitions, enjoyed the access to useful information on international technology, marketing trends and finally their exposure was improved because they were included in the MSC list of directories. However, Richardson *et al.* (2010) raised a question; do these benefits demand the physical proximity or co-location in a cluster? Actually, these were the advantages of MSC-status, irrespective of the location of the firms.
- c) The financial assistance is targeted mainly on the product development rather than the international expansion or other needs.
- d) The international community knows little about the MSC and the MSC-status.
- e) Main impediment in knowledge flow is the patchy location of office complexes. Since there is less population living within the cluster, therefore, the tacit knowledge flow through human interaction is not existent.
- f) Policy driven cluster does not provide the benefits of availability of pool of knowledgeable workers within the clusters at least in the short run. The paramount reason could be the less population of firms and less visibility of the cluster induced benefits.
- g) Respondents expected that the benefits of clusters would flow automatically through the policy maker's action.

- h) He revealed that respondents complained about the deficiency of social amenities like coffee shops and restaurants that are essential for facilitating the tacit knowledge exchange. Imagawa (2005) and Lundequist and Power (2002) viewed these social amenities as essential source of informal interface. In the same vein, Yusuf *et al.* (2008) recommended that any urban center hosting a cluster-based development strategy must maintain adequate infrastructure, housing and public services for inviting mobile knowledge workers and entrepreneurs.
- i) Richardson *et al.* (2010) further noticed that MSC location decision was not well thought over, as the firms were reluctant to join Cyberjaya due to larger social and physical distance from greater Kuala Lumpur that is the hub of international activities and information. Correspondingly, Yusuf *et al.* (2008) suggested, “Tailoring an environment for an industrial cluster is a costly and risky enterprise. The payback might never materialize, and even if it does, years may pass”. In the case of Malaysia, he observed that infrastructure has facilitated the emergence of agglomeration but infrastructural support is too sumptuous and demanding, and “as Malaysia has discovered, infrastructure does not lead inevitably to cluster formation; it is just one stepping stone”.
- j) During research, Richardson *et al.* (2010) observed that entrepreneur and academia are oblivious of the dynamics of the clusters.
- k) Trade fairs, symposiums, workshops and alike organized by the governments for the cluster firms, are helpful to acquire knowledge.

In another study, Suhaimi (2009) identified the causes of knowledge transfer stickiness in technology parks of Malaysia (including MSC) and rendered two main conclusions; firstly, at macro level government’s economic policies are focused on investment attraction, employment and business opportunities, wealth creation and national stability, praiseworthy enough, but these policies omitted knowledge transfer as its priority. Secondly, firms at the micro level are hesitant to transfer the knowledge due to the high cost of transfer, and lack of interest in sharing knowledge. Firms are interested to use informal methods for acquiring knowledge. The firm’s

main objective is to maximize the profit while utilizing the modern facilities, networking opportunities and sophisticated infrastructure of the technology parks.

Other studies considered socio-economic aspects of MSC, for example, according to Brooker (2012), the “intelligent city” exhibited itself as a sensorially deteriorated, detached business park, with inadequate innovative capacity and with limited benefits for wider economic and social development. This is further elaborated by Yusof and van Loon (2012), who noted that in MSC, the social amenities, like restaurants and cafés are mostly empty except during the lunchtime. There is no night-life in the city yet, and seems that MSC is designed for the singles rather than for families. For authors, MSC is like a lifeless non-place, as it has no social life; it has only limited or “pocketed” social life. One of the reasons for this non-place may be that MSC is built on the idea of individualization. Thus, it might be an arduous task to articulate ethos of collectivism. The essence of individualization is dissimilar from the principles of Kampong values. MSC is a different Kampong, one that is viewed as a “contract Kampong” where the social relationship has no long-term obligations and only occupation marks social status. Whereas, in the traditional Kampong it is about religious, moral obligations and family well-being. They concluded that MSC as a utopian globalized information communication technology city inhibits interdependence and therefore, prevents the development of a sense of “belonging.”

In summary, it can be inferred from previous studies on MSC that firms are enjoying the benefits of financing for R&D, marketing and R&D support; firms are reluctant to exchange the knowledge, it is evident that the efforts and intentions of the government are beyond any doubts, but this cluster has yet to show the success, as envisioned in early 1990s. The foregoing critical review of the Malaysian SME and MSC cluster related issues necessitated a research on cluster development initiatives in Malaysia, as the challenge today is not to create more clusters, rather to strengthen the better ones in order to foster innovation and competitiveness. This leads us to inquire, why these initiatives have not proven to be effective despite the direct involvement of the government at all levels.

1.3 Statement of the Problem

Despite the concerns highlighted regarding the MSC in the previous section, Malaysian government continues to focus the cluster and corridor based economic development. For example, the recently developed New Economic Model and ETP advocated this policy for the future economic development of Malaysia (NEAC, 2010; Xavier and Ahmad, 2012; Harris *et al.*, 2012).

Therefore, it is imperative to probe, why above mentioned studies are giving such signals about a cluster, which claims to produce, total revenue to RM 31.73 billion in 2011, created 119,138 jobs in 2011, number of MSC status firms rose up to the 2,954 in the same year and MSC status company's penetration into the markets of Indonesia, Singapore, USA, China and Thailand on the basis of their competitiveness in the InfoTech and Creative Multimedia Clusters?

If MDeC claims that it is offering various programs, services and grants to the firms then why scholars are signifying that technology upgrading is not fast enough to help stimulate the catch-up process (Rasiah, 2010). If the CIs should be steered by the private sector (Sölvell *et al.*, 2003) and firms should have strong linkages (Porter, 2000) with knowledge sharing culture (Evers *et al.*, 2010) and signals of strong entrepreneurship (Sexenian, 2004) then why these characteristics are not found in the MSC cluster?

This inquiry is also driven by the recent empirical findings and theoretical debate on the configuration of 'spontaneous' and 'policy led' cluster types (Chiaroni, 2005; Su and Hung, 2009; Richardson *et al.*, 2010, Fromhold-Eisebith and Eisebith, 2005, Kutchiki and Tsuji, 2005; Lundequist and Power, 2002; Wickham, 2005; Ingstrup and Damgaard, 2010). Consequential to this, the extent of the role of government in the development of clusters has become a controversial aspect of the debate. One group of academicians and practitioners considers government role as exogenous to cluster development (Porter, 2000; Feser, 2005; Schmitz and Nadvi, 1999; Guinet, 2003; Hospers and Beugelsdijk, 2002), while the other considers the role of government more integrated and significant for cluster development (Kutchiki

and Tsuji, 2005; Lundequist and Power, 2002; Wickham, 2005; Chen and Tsai, 2012; Viladecans-Marsal and Arauzo-Carod, 2011; Ingstrup and Damgaard, 2010).

So far, the researchers are not able to resolve this question unambiguously because there is evidence of both. However, Kiese (2008) warned that top-down (policy-driven) cluster initiatives suffer from a theory deficit in conceptualizing them. Furthermore, Ebbekink and Lagendijk, (2012) asserted that academic research on clusters has focused too much on economic-geographical aspects. Consequently, ignored the complex institutional context in which policy-making is undertaken. Therefore, ‘Cluster policy challenges’, as a theme for academic investigation is neglected and relatively there is small number of published empirical studies on the practicalities of the cluster policy (Crone, 2009). In order to substantiate the need of the research, Table 1.2 mentions a few of the studies suggesting a probe into cluster organizations and initiative development process.

Table 1.2: Literature highlights about the importance of cluster initiative studies

Author	Recommendation
Richardson <i>et al.</i> (2010)	There is need to advance the investigative work on policy driven clusters like MSC to extend our knowledge about this type of cluster. The main finding of his study is that in MSC, firms get the benefits of financial support and marketing from policy makers. The benefits of geographic co-location of actors are found to be limited.
Lindqvist (2009)	Cluster organizations have not been widely studied and only two quantitative studies have been executed on the cluster initiatives namely GCIS 2003 (Sölvell <i>et al.</i>, 2003) and GCIS 2005 (Ketels <i>et al.</i>, 2006). <i>Note:</i> In both of these studies, Malaysian clusters did not participate.
Onoparatvibool (2011)	Institutional modality (process of collaborative dynamics) needs to be evaluated in the clusters.
Zizah Che Senik (2010)	There is need to explore the initiatives taken by the agencies and institutions involved in providing the necessary support for internationalization of SMEs.
Brun and Jolley (2011)	Developed an interface between the field of public administration and cluster development and highlighted the importance of a collaborative

	approach to the cluster identification stage and recommended collaborative governance framework for cluster analysis.
PricewaterhouseCoopers (2011)	The report argued that attaining cluster excellence (cluster growth, value addition, innovation and productivity) is contingent on the excellence of the cluster management process.
Sölvell (2003)	Introduced the concept of CIs, and tool for measuring the effectiveness of these initiatives namely Cluster Initiative Performance Model (CIPM). It suggests that measuring cluster initiative success is vital for tracking the competitiveness of the cluster. The cluster initiative development process is one component of this model.
Sölvell (2008)	In order to foster dynamic clusters, cluster initiatives are important instruments in the hands of policy makers and practitioners.
Andersson (2004)	Observed that a relatively scant work of mapping the competencies required for cluster initiatives has been done so far. He emphasizes the need to explore more about the process elements.
Teigland and Lindqvist (2007)	Scant scholarly work is accomplished in the public-private collaboration on cluster initiatives.
Huber (2012)	Despite several studies on clusters, still there is need of research on both economic effects of clustering and context specific case studies on cluster and firm level mechanisms.
Crone (2009)	There are relatively small numbers of published empirical studies on the practicalities of the cluster policy.
Iammarino and McCann, (2006) and Manning (2012)	Argued that cluster research has traditionally focused on clusters in developed countries.

Source: Developed from the literature

Aforementioned studies besides other issues for possible investigation also necessitated the inquiry about the CI development process, as well as the scope of public-private collaboration in policy-led clusters. This kind of investigation is scarce and will offer original insights about the role of government in the policy-led clusters, particularly, in the era of liberalization and globalization. Consequently, due to the paucity of the formal evaluation studies, academic research studies may

provide the best chance of learning about the practice of CIs. A handful of such studies has demonstrated the utility of this approach (Fromhold-Eisebith and Eisebith, 2005; Perry, 2005) and provided the motivation for the present study.

Thus, in the context of differing opinions of researchers about the policy-led cluster's dynamics, its underlying processes as well as the Malaysian government's direct involvement in the cluster development policies, this research investigates *how cluster initiatives are developed in policy-led clusters*. CIs are the organized collaborations between the public and private sector aiming at the enhanced growth and competitiveness of cluster (Teigland and Lindquist, 2007) and are among the most noticeable forms of actions (Sölvell *et al.*, 2003) in the cluster development these days. This investigation contributes to our understanding of various challenges faced by the policy-led clusters and the actions taken by the cluster organization to address these challenges through initiative development. This investigation will aid to discover how firms and policy makers in MSC perceive clusters and initiatives. This research will explore how initiatives are developed in the policy-led clusters, where the government is directly involved in the cluster operations, in contrast with the organic clusters where firms steer every activity in the cluster. The research will examine whether the firms and policy makers (MDeC) are on the same page regarding the choice of initiatives and initiative development process, furthermore, do the cluster actors collaborate with each other during the design stage of initiative development process. Finally, to investigate, whether these initiatives contributed to the performance of the clusters.

1.4 Objectives of the Research

In the context elucidated in the problem statement, this research seeks to contribute to the relatively new dimension of clusters by developing an interface between the collaborative governance and cluster initiative development. The main

aim of this research is to investigate cluster initiative development process in policy-led clusters. Five specific objectives are assumed in this research:

- i. To inquire the level of understanding of cluster actors about the ‘concept of the cluster’ and based on their concept to seek the answer of ‘why do firms join policy-led clusters’.
- ii. To uncover the key challenges faced by and factors impeding the firms to take the ‘advantages of clustering’ in the policy led-clusters.
- iii. To examine the remedies to the challenges in the forms of initiatives taken by the cluster actors in policy-led clusters.
- iv. To explore the cluster initiative development process practiced in policy-led cluster.
- v. To suggest a framework for the cluster development initiative in policy-led clusters

1.5 Research Questions

To address the above-mentioned research objectives and research problem, five research questions are formulated. These are:

RQ1: How would you interpret MSC as a cluster of ICT firms and why do firms co-locate in MSC Cyberjaya?

RQ2: What are the key challenges faced by the clusters and factors inhibiting firms to take the advantages of clustering in policy-led clusters?

RQ3: What initiatives have been taken to mitigate the effects of these challenges?

RQ4: How these initiatives are conceived, developed and governed in MSC?

RQ5: How the success of initiatives is measured and manifested in MSC?

1.6 Scope, Limitation and Assumption of the Research

For this research, MSC as a case study is selected for two main reasons, firstly, governments often spark off the regional cluster development in order to develop the local competitive advantage and support SMEs (McDonald et al., 2007; Chiesa and Chiaroni, 2005; Su and Hung, 2009), MSC is also a policy-led cluster because it is the result of the direct involvement of Malaysian government from scratch. Secondly, cluster studies are focusing knowledge-intensive and high technology industries such as ICT where a plethora of initiatives are taken in these clusters (Imagawa 2005; Xu and McNaughton, 2006, Cooke 2001; Dohse, 2007). The scope of this research is limited to the meso level analysis and is limited to the small and medium sized ICT firm's located in Cyberjaya designated area. Studies suggested that cluster analysis could be conducted at three levels (den Hertog *et al.*, 1999, Roelandt *et al.*, 1999) as mentioned in Table 1.3. First, the national or macro level, which refers to an analysis of inter industry dynamics within an economic system as a whole for mapping the specialized trends of the national or regional economy.

Table 1.3: Cluster analysis at different levels

Level of analysis	Cluster concept	Focus of analysis
National level (macro)	Industry groups linkages in the economic structure.	Specialization patterns of a national/regional economy. Need for innovation and upgrading products and processes in mega- clusters.
Branch or industry level (meso)	Inter- and intra-industry-linkages in the different stages of production chain of similar end product(s).	SWOT and benchmark-analysis of industries. Exploring innovation needs.
Firm level (micro)	Specialized suppliers around one or a few core enterprises (inter-firm linkages).	Strategic business development. Chain analysis and chain management. Development of collaborative innovation projects.

Source: Adapted from den Hertog *et al.*, 1999, Roelandt *et al.*, 1999

Second, is the branch/industry/cluster or meso level, focuses on intra-industry linkages at different stages of a production chain of similar end-product(s) of clusters. The smallest level of cluster analysis is the firm level, or micro level. It is dedicated to firms and their linkages among themselves and with suppliers. Advocates of cluster development promote both macro and meso level of analysis (Andersson, 2004). Some argue in favor of only the intermediate level that is between micro reforms and national policy reform, the meso level, as it creates the base for major reforms (World Bank, 2010). This research, therefore, takes “cluster” as a unit of research and will focus on the meso level analysis. It is a single embedded case study, which assumed that:

- i. The informants have responded with honesty and integrity, to the semi-structured questions posed to them during a face-to-face interaction or through Skype.
- ii. The selected sample of firms and officials adequately represent the cluster actors.

1.7 Significance of the Research

This research is an attempt to breed new insights into the phenomenon that has not yet attracted a great deal of attention from academicians. Thus, the research significantly contributes to the noticeable gaps mentioned below:

- i. CIs are a new phenomenon and originated around the year 2000 (Ketels *et al.*, 2006). This research aims to enrich the understanding about *the cluster initiatives development in policy-led cluster of Malaysia*. It will also supplement our current knowledge about, *why firms join this type of cluster*.
- ii. There is a scant research about the *challenges faced by the policy-led cluster*, and how the *cluster organizations in these clusters respond to these challenges*. This case study will be a novel contribution to this missing

- dimension. Therefore, it aims at assessing the role of the cluster organization in MSC.
- iii. Little is known about *how the stakeholders are engaged in the development of initiatives in the clusters*. This research aims to produce useful insights about *the initiative development process* in the policy led clusters.
 - iv. This research suggests a framework for the initiative development based on the *collaborative governance* of the cluster.

1.8 Thesis Structure

In order to reach to a logical conclusion, this research is organized into five chapters. Current chapter introduced the topic and comprehensively discussed the background and justification of the research. For the sake of strengthening the significance of the topic and showing the research gap, most of the literature regarding Malaysian cluster policy and MSC cluster, is presented in this chapter.

Chapter 2 consists of the literature review on clusters, cluster policies, cluster initiatives, the role of government in clusters, cluster evaluation practices and collaborative governance theories, at large. This chapter draws on the findings of recent empirical studies and identifies the gap in theory. Finally, a conceptual framework for cluster initiative development process is proposed based on literature review.

Chapter 3 introduced the research methodology approach used in the research. It introduces the epistemological, ontological and methodological choices available to the researchers. Later, the appropriateness of an interpretivist, inductive, qualitative approach based on a single, embedded case study and semi-structured interviews as research methodology are justified. MSC as a cluster is taken as the unit of analysis.

The penultimate chapter shows the key findings shown in the form of quotes and matrices. The data analysis is based on the themes surfaced through the manual transcription and analysis. The chapter also presents the interpretive discussion on the emerged themes.

Chapter 5 assesses the contributions of the present research to the existing literature and determines how the findings contradict or extend existing theories and Models. It concludes the study as well as discusses the overall academic contribution and suggests the firms, academia and policymakers. Moreover, this chapter mentions the research's main limitations and recommends future research direction.

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