A STUDY COMPARING R&D CLUSTERS IN INDIA

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Abstract

Observed trends in R&D expenditures reveal that the quantity and geographical distribution of such investments has changed over the years. Multinational Enterprises (MNEs) are increasingly spending money on R&D investments, as they must continuously upgrade their processes, products and services for establishing long-term success in today’s increasingly competitive landscape. In the mist of this, MNEs from developed countries are increasingly making R&D investments in emerging markets. India and China has in this regard be termed “hotspots” and do today house several R&D clusters. Given the important role of R&D and the changing patterns of such investments, the following thesis aims to address four related research gaps: (1) the limited understanding of how MNEs make location choices, (2) the limited recognition of the inherent differences between research and development oriented activities and how such differences impact location choices, (3) the relatively limited attention scholars have given India, although this country is attracting significant amounts of R&D investments, and (4) the limited understanding of how emerging markets differ on a sub-national level. Based on these issues, the following research question has been formulated: What are the differences and similarities between R&D city clusters in India, that are significant from a western R&D investment perspective?

The purpose of this research question is three-fold. It firstly serves to encourage the integration of International Business (IB) and Economic Geography (EG) literature for better understanding location choices for economic activities. Secondly, it serves to encourage researchers to acknowledge and take into account the inherent difference between research and development activities. And thirdly, it serves to highlight that regional variation exist in emerging markets on a sub-national level. A sub purpose of this is to encourage more research on India.

For addressing the research question in matter, this thesis has studied Bangalore and Gurgaon which are two growing clusters in India. They have been studied through a qualitative research methodology where interviews have been combined with secondary sources for understanding their differences and similarities, and subsequently their strengths and weaknesses from a research and development perspective respectively. By looking at factor-, demand-, industry-, firm rivalry-, network- and policy conditions, it has been found that several areas of similarities and differences exist between the two clusters. In regards to similarities, both have similar levels of costs in terms of human capital; both cities receive support from the national government and both cities largely serve customers across the world, including India, and do thus both provide environments where there is to some degree a pressure from sophisticated demand conditions to be more innovative. In regards to differences, Bangalore has relatively more talented human capital available; Bangalore is dominated by the IT industry whereas Gurgaon is not clearly dominated by a single industry; Bangalore has more proactive support from its local policy makers; Bangalore has more local network linkages whilst Gurgaon has more global network linkages; and lastly, Gurgaon has more local rivalry. Based on these similarities and differences, it has been argued that Gurgaon is a relatively better location for both research and development oriented R&D investments from a telecom industry perspective.

Essentially strong enough evidence for the identified similarities and differences has not always been found due to limited data. They are nevertheless indications of regional variations that could serve as a basis for future research to have a closer look at. As indications of similarities and differences that affect the location choice of research and development activities differently has been found - using an approach integrating insights from IB and EG - this paper has served its purpose in terms of encouraging further research related to identified research gaps.
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1 Introduction
In this chapter, we present the reasons for our choice of topic, followed by a description of the problem background. Then we will describe the identified research gaps found in the current literature, on which we base our research question and research purpose. The chapter closes with a presentation of the study’s knowledge contributions and its delimitations.

1.1 Choice of Subject
The central topic of this study is R&D internationalization to emerging markets. This is largely driven by an observation of how emerging markets are increasingly attracting significant amounts of Foreign Direct Investments (FDI) in R&D activities. Emerging markets are commonly underestimated. They are often associated with cheap labor and manufacturing activities. Many of them are however undergoing political and economic changes that are sequentially impacting the global business environment. With companies, such as Tencent, Alibaba and Whipro emerging from such countries, emerging markets are revealing that they possess large potential. This potential is proving to present both opportunities and threats for companies in the western world. They are beginning to shift the economic power whilst developing capabilities that can help them disrupt industries across the world. Understanding emerging markets can therefore be of high relevance for those who are, or will be, working within the business field. A growing trend that can be observed in these markets is furthermore the emergence of R&D clusters. Many western companies are locating their R&D activities in such regions and it can thus be of interest to learn more about the business contexts of these countries from the perspective of western companies. The following study will thus address the business environment in emerging countries from a R&D perspective. We believe this will be a good complement to our education where R&D beyond having a significant role for innovation has been given minimal attention. It can simultaneously help us prepare for a future that is likely to be influenced by the developments of emerging markets.

1.2 Problem Background
“Location choices depend on how the characteristics of one spatial unit and its geographic environment affect firm’s profit relative to the characteristics of other spatial units”
- Mukim & Nunnenkamp (2012, p. 888)

Globalization and technological advancements are causing the competitive landscape to be intensified, as they are reinforcing each other and erasing borders (Lahiri et al., 2008, p. 314). It is causing the business world to become more dynamic and fast-paced, subsequently leading to major implications for enterprises all around the world. Regardless of the size, industry or the economic state of the home country, all firms are more or less faced with more difficulties of establishing and sustaining long term success (Lahiri et al., 2008, p. 314). This pressures them to be increasingly flexible and future oriented (Ireland & Webb, 2007, p. 49). The decline of large industry players, such as Nokia and Kodak, clearly exemplifies how no company can afford stomping on the same ground for too long, or their success is likely to be short-lived (Lee, 2013; Mui, 2012). Failing to be future oriented in terms of continuously striving to upgrade processes, products and services can thus not only inhibit growth, but it is also a matter of survival (Ireland & Webb, 2007, p. 50). The increased pressure caused by today’s business landscape consequently signals the importance of innovation. Innovation is often highlighted
as a strategy for addressing today’s challenges (Ireland & Webb, 2007, p. 50; Lahiri et al. 2008, p. 313; Porter, 1990a, p. 75). This subsequently also highlights the increased importance of R&D since this is a central part of the innovation process.

R&D is often described as the primary input and driver of innovation (see e.g. Yip & McKern, 2014, p. 3). It has an important value adding function that can lead to both economic and social benefits (Bravo-Ortega & Garcia Marin, 2011, p. 1090; Erken & Kleijn, 2010, p. 203; Medeiros et al., 2014, p. 76). R&D is therefore not only important for the survival and growth of companies, but also for the potential benefits it can generate to society. Investments in R&D can stimulate the development of products and processes that can help deal with social challenges (Govindarajan & Ramamurti, 2011, p. 193; Hojnik & Ruzzier, 2016, p. 36). Many pressing social issues are for instance related to global warming, scarcity of resources and a growing ageing population (United Nations, n.d.; PWC, n.d.). Such issues are creating a demand for more sustainable solutions that can help improve peoples’ quality of life (Pece et al., 2015, p. 461). It is furthermore commonly acknowledged that R&D and innovations can stimulate and grow the economy of nations (Akcali & Sismanoglu, 2015, p. 774; Gumus & Celikay, 2015, p. 215; Inekwe, 2015, p. 743). Taking actions towards attracting foreign and domestic R&D investments is consequently important for policy makers who aim to increase productivity and economic growth (Erken & Kleijn 2010, p. 204).

The important role of R&D is furthermore signaled by the observed growth of R&D investments. The world has experienced substantial growth in global R&D expenditure over the past years, both in terms of nominal value and as a percentage of global gross domestic product (GDP) (UNESCO Institute for Statistics, n.d.). The World Bank (n.d., p. 3) does for instance show how investments in R&D activities as a share of global GDP has increased from 1.972% in 2005 to 2.288% in 2015. Figure 1 below furthermore helps us deduce the origin of these growing R&D expenditures. It reveals that North America and Western Europe are the dominant regions in terms of having the largest R&D investments. Focusing on the European Union members, statistics show that the percentage of GDP invested in R&D had reached 2.03% in 2014, with a target of increasing to 3% by 2020 (Eurostat, n.d., a; Eurostat, n.d., b). This furthermore shows that an intentional aspiration to increase R&D expenditures exists. Figure 1 nevertheless also reveals that North America and Western Europe had an annual growth rate of 4.82% between the years 2003 and 2013. This is relatively low when compared to East Asia and the Pacific region’s annual growth rate of 11.11%. Additional sources verify that the global growth in R&D expenditures during the past decade is largely driven by Asian countries, with China in the forefront (R&D Magazine, 2017, p. 3). It is thereby revealed that R&D investments have not only changed in quantity, but also in terms of its geographical spread (Patra & Krishna, 2015, p. 1).
The dominant choice of location for R&D investments has historically been companies' home countries. Manning et al. (2008, p. 39) however explains that firms have invested in R&D activities abroad since World War II. During this time, R&D was typically offshored (i.e. moved to a location outside one’s home market (Manning et al., 2008, p. 39)) by multinational enterprises (MNEs) from small countries. Since then, the internationalization of R&D has become an increasingly common strategy. The 1980s and 1990s especially show an acceleration in the increase of R&D investments abroad (Gammeltoft, 2006, p. 179). The specific choice of location has nevertheless traditionally been limited to developed countries. In support of this, Gammeltoft (2006, p. 193) suggests that the internationalization of R&D investments should be referred to as “triadisation”, since it typically has involved offshoring R&D within the triad of the United States, the European Union and Japan. However, as previously revealed, observations show that a growing amount of R&D investments are flowing to emerging markets (Demirbag & Glaister, 2010, pp. 1534-1535; Patra & Krishna, 2015, p. 1; Siedschlag et al., 2013, p. 1420).

Emerging markets are in regards to business activities commonly associated with manufacturing activities and low cost labor. Attracted by the big size of these markets, many companies have however come to sell their products and services to such countries. R&D activities have consequently been located in emerging markets for adapting existing products to local demand. Researchers such as Erken & Kleijn (2010, p. 208), Hurtado-Torres et al. (2017, p. 1) and Patra (2017, p. 557) do however explain that these early motives for R&D investments in developing countries have begun to change. Instead of focusing on knowledge exploitation, companies are increasingly moving their R&D activities to developing countries for knowledge exploration purposes. The increasing flow of R&D investments into emerging markets have nevertheless largely contributed to the emergence of several R&D clusters across such countries (see e.g. Rao & Balasubrahmanya, 2017, pp. 95; 98-100). With the growing number of location options across the world, deciding where to locate R&D investments becomes a decision with increased uncertainty, given the many different set of opportunities and risks that must be evaluated (Demirbag and Glaister, 2010, p. 1535). Such uncertainty can especially be considered high in emerging markets where significant regional variations that...
can impact R&D success exists (Holtbrügge & Friedmann, 2015, p. 6). This implies that the location of R&D investments is a choice that should be made carefully.

In the mist of increasing internationalization, a debate about the importance of location has risen. Some speak about how “the world is flat” and that “distance is dead”, as they question the traditional notion of geographic proximity being important (Cairncross, 1997; Friedman, 2005; Healy & Morgan, 2012, p. 1046). Although the changing global environment suggests that the traditional roles of locations have weakened, a paradox is believed to exists as observed geographical distributions suggests that location still matters (McCann, 2011, p. 310; Porter, 2000, p. 15). Cantwell (2009, p. 37) does in this regard however bring to light Michael Porter’s view on the matter. He essentially argues that the importance of location depends on the activity. He explains that location may have become less important when it comes to accessing standardized intermediate product inputs, as this can now generally be sourced from anywhere. In regards to increasing the stock of knowledge, however, Porter & Stern (2001, p. 28) argue that the choice of location is still important. This view is today the dominant thinking on the matter. It is for instance supported by Morgan (2004, p. 3) who explains that the “death of geography” is an exaggeration whilst specifically highlighting the importance of geographical proximity to knowledge-based activities. The nature of knowledge is generally tacit and difficult to transfer (Bathelt et al., 2004, p. 38). This makes geographic proximity especially important for learning processes (Beugelsdijk et al. 2010, p. 491). The importance of location for R&D activities is furthermore revealed by how R&D is distinct from other type of activities due to the prevailing role of knowledge. Although one could argue that knowledge is at the core of all business activities, it can especially be considered imperative for R&D as such activities centers around increasing a firm’s stock of knowledge (OECD, 2015, p. 44).

The importance of location nevertheless continues to be challenged (see e.g. Healy & Morgan, 2012; Lychagin et al., 2016). An example of a relatively recent study that argues against its significance is Letaifa & Rabeau (2013). Their study shows that geographical proximity does not necessarily enhance knowledge and innovation. They even argue that it can have negative effects (Letaïfa & Rabeau, 2013, p. 2071). This does however reinforce the idea that location is important. Choosing the right location, whether it for instance involves being geographically – or even culturally, politically and economically – close or distant can impact a company’s R&D activities, from both a cost and performance perspective (Beugelsdijk et al., 2010, p. 489; Holtbrügge & Friedmann, 2012, p. 138; Holtbrügge & Friedmann, 2015, p. 11; Ottaviano, 2011, p. 236). The question about where to locate and what makes one location better than another, is rather a different topic of discussion. Related to this, Florida (2003, pp. 4-5) highlights the emergence of geographical regions with higher concentration of firms and people. He explains that industries that are high-tech, knowledge based and/or oriented around creative content, are increasingly clustering together within certain places (Florida, 2003, p. 5), thereby contrasting Friedman’s (2005) view about the world being flat by suggesting that the world is ‘spiky’. Clusters, or industrial clusters as often referred to, are commonly defined as “geographically proximate group of firms and associated institutions in related industries, linked by economic and social interdependencies” (Porter, 2000, p. 16; Rao & Balasubrahmanya, 2017, p. 95). They can constitute different types of geographical regions, such as a city, state, country or even a set of several neighboring countries, as it “relates to the distance over which informational, transactional, incentive, and other efficiencies occur” (Porter, 2000, p. 16). This is further supported by Florida (2003, p. 4) who mentions Hollywood, New York City and Silicon Valley as examples of clusters, although they are all different types of regions. Speaking about clusters as any type of region can however be cause for confusion. Many namely highlight...
how the benefits of clusters come from the geographic proximity that they allow for (see e.g. Gordon & McCann, 2000, p. 516), but the degree of proximity – and thus the potential benefits - between actors in a ‘continent’ cluster and a ‘city’ cluster, is naturally different. This suggest that having a broad view where clusters can be any type of region, risks being misleading. It can be cause for confusion as different types of cluster regions are not necessarily comparable. The definition of clusters has in this study thus further been narrowed down by referring to clusters in terms of geographical regions that are cities (reasons for this more specific choice can be found under the section 1.7 Delimitations).

1.3 Research Problem
The topic of R&D and the internationalization of such business activities has received much attention within the academic field. On the contrary, less research with focus on emerging markets can be found. Existing literature nevertheless reveals several research gaps related to R&D internationalization and emerging markets, both individually and in relation to each other. Such research gaps are identified below.

1.3.1 The Location Choices of Multinational Enterprises
Understanding the locational choices of companies’ value adding activities have been of interest to scholars from various research fields for decades. The topic has been examined from different perspectives whilst addressing different aspects and using different methods (Beugelsdijk et al. 2010, p. 485; Kim & Aguilera, 2016, p. 146; McCann & Mudambi, 2005, p. 1857; Nielsen et al. 2017, p. 63). Although this has resulted in an extensive amount of literature, McCann & Mudambi (2005, p. 1857) explain that the various approaches have resulted in major problems of interpretation and comparison. The understanding of companies’ locational choices is very partial and fragmented (Beugelsdijk et al. 2010, p. 486), and this is an issue which increasingly has been recognized. Following the works of Scott (1998), Porter (1990a) and Krugman (1991a and 1991b), attempts to consolidate findings from various fields have consequently been made (Beugelsdijk et al. 2010, p. 487). Krugman’s (1991a) use of the term “New Economic Geography” has particularly been associated with an encouragement to utilize insights from various research streams for better understanding the location of business activities (Beugelsdijk et al. 2010, p. 487; Garretsen & Martin, 2011, p. 208; Ottaviano, 2011, p. 231). It has for instance largely encouraged the launch of the Journal of Economic Geography, which explicitly aims to stimulate communication between International Business (IB) and Economic Geography (EG) scholars (Garretsen & Martin, 2011, pp. 207-208, 211).

A major issue and area that needs convergence for understanding the location choice for FDIs is related to the lack of attention IB and EG scholars have given to spatial and organizational dimensions respectively (Beugelsdijk et al., 2010, p. 487-488; Cook et al., 2012, p. 1112; Dunning, 2009, p. 6; Kim & Aguilera, 2016, p. 136; McCann & Mudambi, 2005, p. 1865; Ottaviano, 2011, p. 231). More specifically, IB scholars tend to highlight firm level attributes and how such aspects guide the location choices of company activities and investments. In emphasizing firm attributes, they do however tend to neglect the role of spatial dimensions. On the contrary, Economic Geographers emphasizes the role of space and place attributes for understanding regional developments and the distribution of economic activities. They do however treat all firms as being identical and thereby fail to account for how firm heterogeneity can impact companies’ location choices.

Although both IB and EG scholars are increasingly addressing their weaknesses for better understanding companies’ location choices, many highlight the need for better integration through considering location and organization attributes simultaneously. Beugelsdijk et al.,
(2010, p. 489) for instance explain that “…one of the major remaining weaknesses […] is that none of these streams of research explicitly focuses on how the firm’s organizational characteristics relate to the firm’s fundamental geographical characteristics, both within and between countries”. Similarly, Nielsen et al. (2017, p. 65) explain that “the likelihood of a given company conducting FDI in a given foreign location would depend on (interaction of) characteristics on […] (1) the level of the destination location, (2) the level of the parent firm, and (3) the dyadic level defined by the relationship between the parent firm and the destination location”. There is consequently a need for further studies that considers both organizational and location attributes for understanding the location choice of FDIs – nonetheless for understanding the location choice of foreign R&D investments specifically.

1.3.2 Research vs Development

The previous discussion reveals that a company’s location choice for their R&D investments depends on an interplay of both firm-level (internal) and region-level (external) considerations. In their article, Demirbag & Kleijn (2010, p. 1535) provides an explanation for how they interact. The authors highlight that companies must make trade-offs when choosing an R&D location, since each location comes with its own set of opportunities and risks. Even if all locational features would be considered relevant, one must often prioritize the aspects that are most important and choose a location accordingly. In this regard, it becomes clear how internal considerations can help moderate which locational attributes to prioritize. This is further highlighted by Von Zedtwitz & Gassmann (2002, p. 569) as they show how research and development activities have different location determinants. Their study furthermore brings to light an important area of firm heterogeneity that can affect location choice of foreign R&D investments, namely the inherent difference between research and development (Amsden & Tschang, 2003, p. 553; Demirbag & Glaister, 2010, 1546; Kumar, 2001, p. 160).

Research and development are often spoken about as if they were one and the same. The common use of the acronym R&D lures us to overlook the inherent difference between the two (Von Zedtwitz & Gassmann, 2002, p. 571). They do however differ from each other as they focus on different activities for serving different functions. Research activities are generally oriented towards exploring new knowledge, whilst development activities are oriented towards exploiting existing knowledge. They both involve increasing a firm’s stock of knowledge (OECD, 2015, p. 44), but one could nevertheless argue that such increases are more prevalent in research activities compared to development activities. In this regard, Von Zedtwitz & Gassmann (2002, p. 571) highlights the prominent role of science in research, and engineering in development. They also explain that research is geared towards discovery whilst development is geared towards invention and innovation (Von Zedtwitz & Gassmann, 2002, p. 585). Von Zedtwitz & Gassmann (2002, p. 586) furthermore reveal the inherent difference between research and development, by showing that their geographical patterns are not the same. More specifically, research intensive R&D projects are concentrated to a few regions across the world, whilst development intensive R&D projects are more geographically dispersed (Von Zedtwitz & Gassmann, 2002, p. 569).

Although some researchers recognize the inherent difference between research and development, many fail to adjust their studies accordingly. Siedschlag et al., (2013, p. 1420) do for instance empirically identify the locational determinants of R&D projects located within the European Union. When identifying such determinants, they however use a sample of R&D projects without controlling for the degree to which these projects are geared towards research or development. Consequently, one cannot determine to what extent the identified location determinants are valid for research and development activities respectively. The outcome of not
accounting for the inherent differences between research and development and making necessary adjustments can therefore have a direct impact on the studies’ results. This shows how problematic the matter is and supports the need to better recognize the difference between research and development activities.

1.3.3 India
When it comes to the specific location of R&D investments, observations do as previously mentioned reveal that there is an increasing amount entering emerging markets (Asakawa & Som, 2008, p. 376; EIU, 2004; UNESCO, 2017, p. 2). In this regard, India and China have especially stood out as attractive locations. They were both acknowledged as the world's leading R&D regions along with the United States by 2004 (EIU, 2004, p. 9), and even when looking at newer sources, many continue to refer to them as R&D “hotspots”. The proportion of total FDI that goes to knowledge intensive activities is however greater in India compared to China (Holtbrügge & Friedmann, 2012, p. 138). Given the important role of knowledge intensive activities such as R&D in today’s business environment, one could however question why the former has received relatively less attention by scholars.

Notwithstanding those that have studied India, existing literature related to the internationalization of R&D activities has mainly looked at the impact that foreign R&D have on the domestic Indian companies (Feinberg & Majumdar, 2001; Kathuria, 2001; Manral, 2001). The impact does however go in both direction and it is therefore of interest to better understand how India’s context impacts the R&D activities that have been located there. As previously mentioned, location choice is important as it can influence the success or failure of R&D activities (Holtbrügge & Friedmann, 2015, p. 22). For understanding the implications that India have on foreign R&D, one must however start with better understanding its context. In this regard, Holtbrügge & Friedmann (2015, p. 6) provides evidence for the existence of vast regional variations within India. They show that R&D investments across the country has been unevenly distributed and resulted in the emergence of several R&D clusters on a subnational level. Similarly, Rao & Balasubrahmanya (2017, p. 98) and the Department of Industrial & Promotion (2017) indicate that there are significant concentrations of inflowing foreign investments to certain cities within the country. Holtbrügge & Friedmann (2015, p. 6) suggests that the uneven distribution can be explained by the major variations within the country, as they highlight that India is a large country with multiple languages, cultures, varying political influences, economic and geographical features (Holtbrügge & Friedmann, 2015, p. 6). Such variations within, and even between, emerging markets are however often neglected.

1.3.4 Regional Variations
Early literature reveals that research about R&D internationalization has focused on companies from developed markets and their R&D internationalization to other Western (Ambos & Schlegelmilch, 2004, 2007; Håkanson & Nobel, 1993; Niosi & Godin, 1999) and Japanese locations (Asakawa, 2001; Iwata et al., 2006; Odagiri & Yasuda, 1996). Based on this, conventional wisdom and theories explaining the behavior of multinational firms have been developed (Asakawa & Som, 2008, p. 378; Patra & Krishna, 2015, p. 3). Although the internationalization of R&D to developing countries is still seen as being in its early stage (UNCTAD, 2006, p. 5) emerging markets are nevertheless generally receiving increased attention within the academic field (Kearney, 2012, p. 160; Ramamurti, 2016, p. 74). Many of these scholars do however assume that the previously developed theories remain valid in the context of emerging markets. Such theories rely on observations in developed countries, yet their applicability in emerging markets is not adequately questioned. This prevailing
assumption that theories developed based on observations in developed countries are applicable in emerging markets raises an important topic of discussion, namely the role of context.

The implicit assumption behind the lack of attention provided to reassessing conventional wisdom, is that contextual differences have little impact on the internationalization of R&D (Asakawa & Som, 2008, p. 376). However, as recognized by Ramamurti (2016, p. 76), theories created based on observations in developed countries are not necessarily valid in emerging markets due to the contextual differences. This is furthermore signaled by Kearney (2012, p. 174) who explains that companies need different strategies when operating in emerging markets compared to developed markets. Distinguishing between the context of developed and developing countries is thus imperative, as further supported by the dominant notion of location being important (Holtbrügge & Friedmann, 2015, p. 22; Letaifa & Rabeau, 2013, p. 2012; Morgan, 2004, p. 3). There is however not adequate knowledge about how the spatial and contextual aspects of emerging markets vary. There is a tendency for scholars to generalize the characteristics of developing countries by for instance simply distinguishing emerging markets in terms of aspects such as institutional voids (Gao et al., 2017, p. 2150; Kim & Aguilera, 2016, p. 144). Kearney (2012, p. 162) does however argue that the most interesting aspect when studying emerging markets is the diversity within and between many of these countries. Similarly, Holtbrügge & Friedmann (2015, p. 6) explain that more attention needs to be given to differences and similarities of emerging markets whilst they highlight the vast regional differences that exists within India.

1.4 Research Question
Based on the above problem background and the identified research gaps, it has become evident that there is a need to look at regional variations in India and the location choices of western MNEs’ R&D investments. As mainly discussed in the problem background, such knowledge based activities tend to be concentrated within specific places, thereby contributing to the emergence and growth of clusters. Studying regions in the form of clusters is therefore of interest, given the current focus on the location choices of R&D investments specifically. Although clusters can take the form of different types of regions, we will here focus on clusters in terms of ‘city’ clusters in accordance with how this concept has been defined. Consequently, whilst focusing on regional variations in terms of how R&D city clusters vary from each other, the following research question has been formulated:

What are the differences and similarities between R&D city clusters in India, that are significant from a western R&D investment perspective?

1.5 Research Purpose
The above research question will be answered by studying and comparing the two city clusters Gurgaon and Bangalore, mainly using insights from employees of a MNE. Through answering the above research question, this paper aims to address several purposes. Firstly, it serves to encourage the integration of IB and EG literature for better understanding location choices for the economic activities of MNEs. This will be done by presenting a framework that combines regional space and place attributes that can be examined when studying different geographical areas. The framework will however in this case be used for studying and comparing geographical areas in the form of city clusters, in accordance with how such types of regions are considered attractive locations for knowledge based activities like R&D. Secondly, this paper serves to encourage researchers to acknowledge and take into account the inherent difference between research and development. This will be accomplished by identifying their differences and showing what impact such differences can have on the location choice of R&D
investments. The specific place and space attributes that are considered will further be limited to those aspects that are relevant from an R&D perspective. Thirdly, this paper serves to highlight that regional variation exist in emerging markets on a sub-national level. A sub purpose of this is to encourage more research on India specifically. These last purposes will be addressed by studying how Indian regions in the form of city clusters, are similar/different from each other. As previously mentioned, the focus on clusters is in accordance with how such type of regions are shown to be attractive locations for R&D investments.

1.6 Knowledge Contributions
The answers of the research question will have contributions to deliver on the purpose of this study. This will in turn be beneficial from the perspective of scholars, practitioners as well as policy makers.

This study will highlight that regional variation exist in emerging markets on a sub national level, and that such variations are important to understand in regards to the location choice of research and development activities respectively. It will provide new insights into regional variations in India and their impact on R&D investments for choosing locations. Such contributions will furthermore encourage other researchers to take into consideration subnational variations and their impact on location choice of R&D investments. From the perspective of the academic research fields, this is important for avoiding aggregation biases and developing a better understanding of emerging markets as well as the success or failure of R&D investments.

Understanding regional variations is of high relevance for practitioners, both from a cost and performance perspective. The vast amount of potential locations for their R&D investments makes the process of choosing a location more difficult, but this thesis will aim to contribute with greater insight regarding different clusters in India in terms of their differences and similarities, and subsequently their weaknesses and strengths. This can help them make better location choices. Gaining an understanding of clusters weaknesses and strengths relative to each other, is also helpful for making strategies and organizing R&D activities across multiple locations. By better understanding each location and their differences, action can be taken towards optimizing their strengths and improve coordination across locations.

Lastly, this study will contribute with insights that can be useful to policy makers who wishes to attract R&D investments. It will more specifically mainly be relevant for policy makers in the Indian clusters examined. Given the important role of R&D for generating economic and social value, learning about the different clusters and how they compare to the locational determinants of R&D location can be interesting for them. By better understanding their strengths and weaknesses, policymakers can take action towards increasing the attractiveness of their regions. The likelihood of receiving both foreign and domestic R&D investment can thereby increase and the region’s economy can be stimulated.

1.7 Delimitations
This thesis focuses on western MNEs who have internationalized their R&D investments to India. This delimitation has been made due to that such internationalization activities has historically largely been conducted by MNEs (Manning et al., 2008, p. 39). The thesis has also been delimited to studying clusters that are in the form of cities.

Although clusters can take the form of different types of geographical regions based on a relatively more general and inclusive definition, this study refers to clusters in the form of cities.
It has therefore been delimited to studying city clusters. We argue for a need to delimit the study to a certain type of cluster region so that the comparability between the clusters that will be studied can be increased. There may otherwise be significant differences between for instance a ‘state’ cluster and a ‘city’ cluster that can hinder the ability to find comparable features through which differences and similarities can be identified. To help us answer the research question at hand, the study has consequently adopted a narrower definition of clusters and accordingly been delimited to studying clusters in the form of cities.

The focus on cities, rather than on any other type of geographical cluster region, is a choice that firstly has been made due to the need to study regional variations on a subnational level. Given the need to look at regional variations within emerging markets such as India in this case, clusters in terms of neighboring countries or continents is here of less importance. The further delimitation to cities from a subnational perspective, is based on that many of the emerging clusters in India are indicated to be cities (see e.g. Rao & Balasubrahmanya, 2017, p. 98; Department of Industrial & Promotion, 2017). Focusing on states could nevertheless be too broad as there may be significant regional variations within such areas themselves, whilst focusing on for instance neighborhoods could be too narrow in terms of limiting our access to relevant cluster specific literature and secondary sources that may be needed for answering the research question and fulfilling the purpose at hand.

Given that this study refers to clusters in the form of cities, finding several companies that are located within the same set of clusters can be a challenge. It can be more difficult to find companies that are within the same specific set of city clusters and willing to participate compared to finding companies that are within the same set of state clusters for instance, as this latter case provides more flexibility. Having a relatively large sample of firms and interviewees can however be important for ensuring that the identified differences and similarities are a result of locational variations and not a result of industry or company specific variations. Company and industry variations can namely influence what differences and similarities are identified, thereby impacting the answer to the research question at hand. I.e., rather than finding locational variations, variations that are a result of company and industry differences may arise, which is not in accordance with the research question and research purpose at hand. Given the scope of a master thesis along with the difficulties of finding companies that have offices within the same set of clusters and are willing to participate, the study has consequently aimed to compare city clusters from the perspective of employees of a single firm. By focusing on employees from a single firm, company and industry variations that can impact our ability to answer the research question, can be controlled for as far as possible. It has consequently further fell naturally to focus on MNEs, since such large companies are more likely to have offices situated in more than one location within the same country.

Within the boundaries of the above delimitations, limitation that have risen during the process of this thesis is related to a focus on the telecom industry and the comparison of the two Indian clusters Gurgaon and Bangalore. More specifically, the search for interviewees led to finding a MNE within the telecom sector that had offices situated in these clusters. This thus became the final deciding factor of which R&D clusters in India were compared. How the thesis progressed from what was originally planned and the reasoning for it is furthermore explained in 3.10 Practical Limitations and 6.2 Limitations.
2 Theory

In the following chapter, we will present the relevant theories for our research. A literature review of relevant topics will be presented, followed by a theoretical framework on which the thesis will be centered around in the upcoming chapters.

2.1 Multinational Enterprises & their Location Choices

As explained by Kim & Aguilera (2016, p. 133), the spatial reconfiguration of the global economy is largely driven by multinational enterprises (MNEs). They are the dominant players in the global economy (Cavusgil et al., 2014, p. 14; McCann, 2011, p. 309), and consequently focal in gaining an understanding of the geographical distribution of FDIs (see e.g. Beugelsdijk et al., 2010; Faeth, 2008; Goerzen et al., 2013; Nielsen et al., 2017). In regards to R&D expenditures, they are more specifically responsible for about half of the total global R&D investments and two thirds of business R&D expenditures (Patra & Krishna, 2015, p. 2).

MNEs are largely distinct from other firms because of their investment activities across national borders (Knight & Liesch, 2016, p. 95). They have accordingly for long been described as firms that own and control value adding activities in more than one country (Kuşluvan, 1998, p. 163). This definition has however evolved over the years in a manner that has made it more inclusive. As explained by Kuşluvan (1998, p. 163) control has traditionally been in the form of ownership, but with the rise of new forms of entry modes that are non-equity based, such as leasing and franchising, it is increasingly accepted that owning the value adding activities in a foreign country is not a necessity for being considered a MNE. Instead, control can be possessed through both equity and contractual agreements (Kuşluvan, 1998, p. 164). Taking a similar approach, Dunning & Lundan (2008, p. 3) states that “a multinational or transnational enterprise is an enterprise that engages in Foreign Direct Investment (FDI) and owns, or in some way, controls value added activities in more than one country”. This thereby also reveals that MNEs perform their foreign activities under unified coordination and control without necessarily keeping the activities within a firm’s ownership boundaries (Verbeke et al., 2008, pp. 1236-1237). Dunning & Lundan (2008, p. 3) furthermore refer to their description as a threshold definition of MNEs. They explain that it is a widely accepted definition amongst scholars, business practitioners, data-collecting agencies as well as most national level governments and supranational entities (Dunning & Lundan, 2008, p. 3).

Although the element of ownership is no longer considered a prerequisite, FDI is nevertheless the main entry mode through which MNEs gain control and engage in business activities across national borders. This is signaled by Dunning et al.’s (2008, p. 3) definition and further supported by for instance Patra & Krishna (2015, p. 3). It can also be considered highlighted by the incorrect and misleading use of ‘FDI’ synonymously with ‘MNE’, which is a common issue amongst writers according to Rugman (2003, p. 5). It can involve investments in joint ventures or wholly owned subsidiaries acquired through either greenfield investments or through the purchase of existing assets abroad (Patra & Krishna, 2015, p. 3). As explained by Pan & Tse (2000, p. 538), FDIs are furthermore expensive and involve greater commitment compared to non-equity based alternatives. Although one may argue that companies today are not necessarily domestic from the inception given the existence of born globals (Knight & Liesch, 2016, p. 93), MNEs are based on early theories believed to incrementally engage in such international commitments. Vernon’s (1979) Product Life Cycle does for instance express that the location of production moves away from the country of origin and that patterns of trade change accordingly over time as a product matures (Erken & Kleijn, 2010, p. 206). Similarly, Johanson & Vahlne’s (1977, p. 23) Uppsala model expresses that companies gradually
internationalize by initially locating in culturally and geographically close locations. As a company’s knowledge and experiences increase, the geographical distance is believed to become greater and the foreign commitments larger.

Additional theories that further explain MNEs internationalization behavior - as well as the use of FDIs as an entry mode, include the market imperfection theory, the international production theory and the internationalization theory (Morgan & Katsikeas, 1997, p. 70). These early theories have however been incorporated into Dunning’s (2009) OLI Framework. This framework is also known as the Eclectic Paradigm. It explains firm’s internationalization and FDI activities by using a more dynamic approach compared to for instance Vernon’s product life cycle (Kim & Aguilera., 2016, p. 134). It suggests that such behavior is determined by three variables, namely ownership-, location- and internalization advantages (Dunning, 2009, p. 5). Ownership advantages refers to a firm possessing competitive advantages. This could be either asset advantages or transaction cost minimizing advantages (Demirbag & Glaister, 2010, p. 1536). More specifically, Demirbag & Glaister (2010, p. 1536) explains that an ownership advantage in the context of R&D internationalization lie in the possession of R&D capabilities and/or core technology. In regards to the location advantage variable, this one refers to the benefits a firm can gain from operating in another location. It is in the context of R&D mainly locational aspects that support knowledge creation (e.g. proximity to research centers or availability of human capital). The greater the locational advantages are, the more likely a firm will invest in R&D activities abroad. The final variable, internalization advantages, suggests that the greater the net benefits are of internationalizing business activities within the hierarchy of a firm, the more likely a firm is to go abroad using in-house investments rather than e.g. licensing out such activities (Dunning, 2000, p. 164). In the context of R&D offshoring, this is according to Demirbag & Glaister (2010, p. 1536) affected by a firm’s ability to disaggregate and then integrate R&D activities in different locations. It is also important with good information and communication flows.

Dunning’s OLI framework is a paradigm which implies that location choices are dictated by an interplay of ownership, location and internalization advantages (Dunning, 2009, pp. 5-6). Although the framework is highly recognized, IB scholars have tended to focus on its organizational components, i.e. internalization and ownership advantages. The locational advantages have consequently received little attention (Buckley & Casson, 1985, p. 13; Dunning, 2009, p. 6). Due to this, many argue that IB scholars fail to explain where firms locate their economic activities.

What can be observed is nevertheless that an increasing flow of FDI is entering emerging markets. This is commonly explained by the forces of globalization that have increased competition and enabled/pressured firms across countries and industries towards having more geographical dispersed economic activities (Ireland & Webb, 2007, p. 49). Forces of globalization have however not only increased competition, but it is also believed that it has reduced transportation and trade costs. There is in this regard believed to exist a paradox in the observed geographical distributions of economic activities (Kim & Aguilera, 2011, pp. 135-136; McCann, 2011, p. 310). As explained by McCann (2011, p. 311), lower transportation and trade costs should reduce FDI and enable firms to locate their economic activities in their domestic countries where they rather can enjoy economies of scale. This is in accordance with economic theories such as the knowledge capital model and the pecking order argument (Beugelsdijk et al., 2010, p. 488; McCann, 2011, 310). However, through additional insights from EG, McCann (2011, pp. 314-316) provides a plausible rational for the paradox. He uses Beugelsdijk et al.’s (2010, p. 489) theoretical framework through which it is revealed that that
trade costs have actually not fallen. Instead, they have rather remained the same, if not even increased.

In regards to Beugelsdijk et al.’s (2010, p. 489) framework, they suggest that a more appropriate way for determining the attractiveness of emerging markets and explaining the geographic distribution of economic activities is by adopting “a view of the MNE in explicitly geographic space which centers simultaneously on the notions of place, space and organization”. Similarly, McCann (2011, pp. 309-310) explains how Beugelsdijk et al. (2010, p. 489)’s framework can be used for modifying Dunning’s OLI framework “into a classification schema that is more appropriate for the task by merging economic geography theory with international business”. They more specifically explain that the Ownership and Internalization advantages can be grouped under Beugelsdijk et al.’s (2010, p. 489) Organization component, whereas Dunning’s Locational advantages should be broken down into components of Place and Space. Whilst place emphasizes location-specific characteristics, space stresses geographic distance and network characteristics (McCann, 2011, p. 310). It thereby suggests that EG and IB scholars can complement each other through the manner illustrated below.

Figure 2: OLI remodeled as suggested by McCann (2011, pp. 309-310)

2.2 Organization

In regards to economic geographers, this group of researchers have given much attention to the spatial dimension. Their focus on these aspects have however on the contrary caused economic geographers to neglect the role of firm-level attributes. They often see companies as identical and independent units since they are rarely the main object of study (Beugelsdijk et al., 2010, p. 488; Ottaviano, 2011, p. 231; Ter Wal & Boschma, 2011, p. 920-921). Economic geographers consequently fail to acknowledge firm heterogeneity and the impact of such differences on the geographical distribution of business activities (Beugelsdijk et al., 2010, p. 487; Ottaviano, 2011, p. 231). Scholars have also here addressed the issue of neglect by emphasizing the need to pay more attention to organizational attributes. This has resulted in studies that consider firm heterogeneity mainly in terms of how such differences result in varying productivity levels (Beugelsdijk et al., 2010, pp. 487-488; Ottaviano, 2011, p. 237). It is namely typically believed that productivity levels impact locational choices. More specifically, foreign locations involve extra costs due to liability of foreignness, and for compensating for such costs, productivity levels are needed. Hence, the greater the productivity level, the greater distance and more dispersed geographic distribution is typically believed to be expected (Beugelsdijk et al., 2010, p. 488). Although this is a step in the right direction, Ottaviano (2011, p. 231) explains that researchers “should look more deeply into finer ‘micro-heterogeneity’ across people and firms”. Similarly, Kim & Aguilera (2016, p. 150-151) argues that future research should consider firm differences across value chain activities.
Research & Development

Research and Development (R&D) is often spoken about as if its definition was obvious. Although it may be considered relatively self-explanatory, providing a definition can be important for clarifying the focus of a study. As expressed by Van Mil & Henman (2016, p. 710) "...definitions matter, because concepts, and thus definitions, are shaped by the perception of the audience, and these perceptions might differ as a result of language, education [...] and cultural differences". Still many researchers fail to provide an explanation of how they define R&D (see e.g. Athreye et al., 2014; Hurtado-Torres et al. 2017; Tripathy et al., 2013). Although one may argue that this is a weakness, the lack of definition could be considered a reflection of how mature R&D is as a research topic. It could be considered a reflection of the vast amount of research that already has been conducted and how there today is a consensus in regards to what it is. During the rare occasions when an explanation is provided, researchers tend to refer to the Organization for Economic Co-operation and Development (OECD) (see e.g. Djellal et al. 2003, p. 416; Rilla & Squicciarini, 2011, p. 394).

According to OECD’s Frascati Manual “research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge - including knowledge of man, culture and society - and the use of this knowledge to devise new applications of available knowledge” (OECD, 2015, p. 44). OECD’S Frascati Manual (2015) further explains that an activity must jointly fulfill five core criteria to be considered R&D. These criteria include being novel, creative, uncertain, systematic, transferable and reproducible (OECD, 2015, pp. 45 - 46).

In their own words, the OECD’s definition of R&D has “stood the test of time” (OECD, 2015, p. 44). Although the Frascati Manual has been reviewed and edited several times since the publication of its first edition in 1963, the definition of R&D has only experienced minimal alterations that are related to changes in culture and language (OECD, 2015, p. 43). Even when there has been attempts to challenge OECD’s definition by researchers, they have made it clear that they do not disagree with the definition but rather suggest some marginal adjustments. Djellal et al. (2003, p. 13) is a clear example of this. They argue that R&D within services are underestimated and that it better could be recognized by making implicit elements of OECD’s definition more explicit. They for instance suggest adding design to the acronym, thereby turning R&D to RD&D for shedding greater light on tasks such as plans, models, blueprints etc. One could however argue that these tasks are sufficiently indicated as being part of the development process – if one highlight design, we might as well highlight testing and other elements of the development component. Nevertheless, regardless of such efforts towards alterations, OECD’s definition has essentially remained unchanged and accepted. It is often referred to as the “standard”, “traditional” or “universal” view of R&D, further showing that there is a consensus in regards to how R&D is defined (Djellal et al., 2003, p. 416; Rilla & Squicciarini, 2011, p. 394).

OECD nevertheless further extends our understanding by distinguishing between three types of R&D activities: basic research, applied research and experimental development (Demirbag & Glaister, 2010, p. 1537; OECD, 2015, p. 45). Both basic and applied research is about acquiring new knowledge, but whilst the former involves theoretical or experimental activities without targeting a specific application or use, applied research involves original investigations that are directed towards a specific and practical objective (OECD, 2015, p. 45). Similarly to the latter, experimental development is steered towards a particular aim. It however uses knowledge gained from research or practical experiences to systematically create additional knowledge that is directed towards the improvement or production of new products and processes (OECD,
Although OECD distinguish between three types of R&D activities, most researchers primarily highlight the difference between research and development (Demirbag & Glaister, 2010, p. 1537; Erken & Kleijn, 2010, pp. 207-208; Von Zedtwitz & Gassmann, 2002, p. 571). Von Zedtwitz & Gassmann (2002, p. 571) do for instance explain how the acronym R&D lures us to overlook the inherent difference between the two. In accordance with OECD’s (2015, p. 45) description, they thereby explain how research involves a process of exploring new knowledge whilst development involves a process of exploiting existing knowledge. They furthermore highlight the prominent necessity of science and engineering respectively, whilst also revealing how R&D activities in terms of research and development are distinct from each other by showing that they have different locational drivers (Von Zedtwitz & Gassmann, 2002, p. 570). In this regard, he highlights how the location of research activities are “driven by access to local science and absorption of know-how of global value” whilst the location of development activities is driven by “understanding and reacting to the local market and the efficient cooperation with local customers (manufacturing, development partners)” (Von Zedtwitz & Gassmann, 2002, pp. 584-585).

Overall, R&D activities can be illustrated in the following manner:

![Figure 3: Exploration and exploitation](image)

The difference between Exploration and Exploitation is further highlighted by March (1991, p. 71). March (1991, p. 71) explains that “exploration includes behavior reflecting the search, discovery, experimentation, and play of new courses of action” whilst “exploitation includes the choice, refinement, implementation and execution of a particular course of action”. March (1991) further argues that exploitation have short term benefits in contrast to exploration activities which are important for company’s long-term survival according to Cheng & Van de Ven (1996, p. 595). The two are thereby further different in terms of their expected values and timing, but they are also different in terms of their variability and distribution within and beyond the organization (Cheng & Van de Venn, 1996, p. 595; March, 1991, p. 71). Largely in accordance with OECD’s (2015, p. 45). description of research and development activities, March (1991, p. 85) explains the following: “The essence of exploitation is the refinement and extension of existing competences, technologies, and paradigms. Its returns are positive, proximate, and predictable. The essence of exploration is experimentation with new alternatives. Its returns are uncertain, distant, and often negative. Thus, the distance in time and space between the locus of learning and the locus for the realization of returns is generally greater in the case of exploration than in the case of exploitation, as is the uncertainty” (March, 1991, p. 85).
Given these differences between exploration and exploitation, it is no surprise that research-oriented and development-oriented R&D activities more effectively prosper under different locational advantages, and thus have different geographical distributions. Similarly to Von Zedtwitz & Gassmann (2002, p. 569) both Demirbag and Glaister (2010, p. 1556) and Erken & Kleijn (2010, p. 208) explain that research-focused and development-focused R&D investments react differently to different locational characteristics. The former does however show this by using R&D type as a moderator for the impact that location determinants have on location choices, whilst the latter admits to not being able to actually distinguish between whether the sample of R&D projects are research or development activities and their fails to separate the locational determinants for each type of investment. Compared to them, Von Zedtwitz & Gassmann (2002, p. 569) present the locational determinants in a manner where he clearly separates the locational determinants of each type of investment and does thus serve as a better indication of what drives the location choice of research and development investments respectively (see figure 4).

![Figure 4: Location drivers for R&D (Von Zedtwitz & Gassmann, 2002, p. 584)](image)

For a more inclusive view of locational characteristics that impact the location choice of R&D investments, the upcoming section will nevertheless consider the Place and Space components of the ‘Organization, Place and Space’ framework.

2.3 Place

2.3.1 Emerging Markets

In regards to the more specific choice of location, observations reveal that emerging markets are increasingly attracting FDI (Demirbag & Glaister, 2010, pp. 1534-1535; Patra & Krishna, 2015, p. 1; Siedschlag et al., 2013, p. 1420). As previously touched upon, forces of globalization have had major implications on firms across countries and industries. This has largely contributed to an interest in emerging markets as firms increasingly must be future oriented by continuously improving their processes, products and services for sustaining and strengthening their competitive advantages and being able to compete in today’s increasing competitive environment (Ireland & Webb, 2007, p. 49). With improved information and communication technology they are now also better able to geographically disperse their R&D activities despite the challenges with transferring knowledge given its tacit and immobile nature. In addition to globalization, many researchers explain that a global race for talent drives companies towards the emerging markets for conducting their R&D activities. Manning et al. (2008, p. 41) is one of many who explains that the global demand for mainly science and engineering (S&E) talent
has been increasing, yet the western world is experiencing a decline in such skills. Developing countries are on the contrary graduating a growing number of people with such talent. The availability of skilled human capital along with the lower labor costs are consequently contributing to the increased attractiveness of emerging markets for R&D activities (Demirbag & Glaister, 2010, p. 1539; Hurtado-Torres et al., 2017, p. 1; Siedschlag et al., 2013, p. 1420).

In regards to its definition, there is yet today no consensus in regards to how emerging markets is defined (Kearney, 2012, p. 161). The term is however generally used in two ways according to Li (2016, p. 419). He explains that some use it in a liberal manner by essentially equating emerging markets to developing economies or non-advanced economies. Govindarajan & Ramamurti (2011, p. 191) could for instance be categorized into this group. Their description is namely limited to an explanation of how they use ‘emerging markets’, ‘developing countries’, and ‘poor countries’ interchangeably, whilst using ‘industrialized countries’, ‘developed countries’, and ‘rich countries’ interchangeably. Cavusgil et al. (2012, p. 5) do however argue that an interchangeable use of these terms is cause for confusion. Instead, they fall into Li’s (2016, p. 419) second group of researchers which describe emerging markets “more narrowly and tends to focus on [...] meeting additional criteria such as growth rate, supportive sociopolitical environment and indices of economic momentum” (2016, p. 419). This type of description is more useful as it provides greater insight in regards to what makes emerging markets distinct. More specifically, Cavusgil et al. (2012, p. 5) describe emerging markets as “countries which are in a transition phase, from developing to developed markets due to rapid growth and industrialization” (Cavusgil et al. 2012, p. 5). They further explain that this includes countries that have conducted economic reforms, achieved a steady growth in GDP and increased their integration into the global economy.

Although they do not specify the need for integration into the global economy, Cavusgil et al.’s (2012, p. 5) definition is relatively supported by both Hoskisson et al., (2000, p. 248) and Kim & Aguilera (2016, p. 144). Namely both define emerging markets in terms of (1) experiencing rapid economic growth and (2) undergoing political reforms favoring economic liberalization. In addition to these two criteria where common ground exists, emerging markets are typically characterized by institutional voids (Gao et al., 2017, p. 2150; Khanna & Palepu, 2010, p. 15). This is according to Kim and Aguilera (2016, p. 144) the most pertinent point about emerging markets for IB. More specifically, institutional voids refer to “the lack of market-supporting institutions such as property rights protection and financial intermediaries, which are considered essential for facilitating complex business transactions” (Kim and Aguilera, 2016, p. 144). Institutional voids can thereby present difficulties for firms operating in such environments (Gao et al., 2017, p. 2147). Many consequently view institutional voids as problematic and believes that it discourages FDIs. However, as shown by Kim & Aguilera (2016, p. 143), existing literature is increasingly revealing that this may not necessarily be true. It is rather suggested that the impact of institutional conditions on FDI is moderated by firm-level attributes in support of the underlying assumptions of the OLI framework. This could for instance be in terms of how the more knowledge and experience one has in a certain location, the less likely one is to be discouraged by the institutional voids that may be existing. In a similar positive spirit, an increasing amount of literature argue that institutional voids should rather be regarded as business opportunities (see e.g. Mair et al., 2007, p. 35).

A country that conforms to the definition of an emerging market and is generally characterized by institutional voids, is India (Mair et al., 2007, p. 37). This country has as previously mentioned become a “hotspot” for R&D activities (EIU, 2004, p. 9), and will be the focus of the following section.
2.3.2 India

India, with its estimated 1.3 billion inhabitants in 2017, is a large and very diverse country (Statista, n.d.). This can be seen with its 22 official languages, 300 minor languages and 3,000 dialects (Holtbrügge & Friedmann, 2015, p. 6). The country also has a large number of different religions and religious groups all across the country, as well as over 1,000 castes and sub-castes. The significance of the castes and sub-castes in India is heaviest in the rural area of India, and less so in the larger cities, such as Bangalore. But it is not only cultural and economic differences that exist within India, but also geographical. India is a large country, with warmer weather in the south and colder in the north, which leads to differences in infrastructure such as roads, ports and airports (Holtbrügge & Friedmann, 2015, p. 6). With all of this diversity in the country, treating the different regions as if they were the same seems unjust and as a misinterpretation.

India’s policy on foreign capital has historically been restricted (Holtbrügge & Friedmann, 205, p. 4; Sasidharan & Kathuria, 2011, p. 1227). This did however change in 1991 with the implementation of new reforms that aimed to stimulate the Indian economy. More specifically, Chadchan & Shankar (2012, p. 36) explain that “the reforms of 1990s included significant industrial and trade liberalization, financial deregulation, improvements in supervisory and regulatory system and policies more conducive to privatization and Foreign Direct Investment”. FDI has subsequently played an important role in the development of India as an attractive location for R&D investments (Holtbrügge and Friedmann, 2015, p. 4; Patra, 2017, p. 558). The reforms meant that FDI is allowed in most sectors, and since 1991 India has seen an increase in FDI inflows (Sasidharan & Kathuria, 2011, p. 1227). This trend, however, started about a decade earlier in the mid 1980s when Texas Instrument first opened up a R&D unit in Bangalore, and foreign firms didn’t start to really open up their R&D units in India until the mid 1990s due to the change in policy on foreign capital (Patra, 2017, p. 558). Since then, India has grown to become one of the most popular offshore R&D locations for software development within the IT sector (Karna et al., 2013, p. 217; Patra, 2017, p. 565). MNEs who establish R&D in India, primarily does so in the IT and healthcare sectors (Patra, 2017, p. 562). Different clusters in India is however favored for different types of firms, e.g. for information and communication technology (ICT) firms, Bangalore is the most popular location (Patra, 2017, p. 569).

The business climate in India is shaped by different obstacles for the firms operating in it. According to the World Bank’s (2015) India Enterprise Survey, the biggest obstacle for firms in India is corruption. For medium and large firms, this is followed by electricity and tax rates, whereas small firms face obstacles such as access to finance and practices informal sector to be the major ones. Despite these obstacles in the business environment, more and more firms establish their R&D in India every year (Karna et al., 2013, p. 217; Patra, 2017, p. 565; Sasidharan & Kathuria, 2011, p. 1227). This opens for the questions of why they do so? The change in economic policy in 1991 and the Indian government’s attempt to boost the economy is some of the reasons for this, but it does not answer it completely.

Firms who establish R&D in India do so mainly due to two reasons; one, is knowledge-seeking, i.e. acquire local expertise, knowledge and technologies or access to local science and engineering (S&E), and two, market-seeking, which may be not only access to the Indian market but also the South Asian market (Patra, 2017, pp. 564-565). India has since reforms in the early 90s built up a large supply of highly-skilled workers (Patra, 2017, p. 562).
The amount of FDI has risen since 1991, and in recent years increased significantly. In 1998, India received US$2633 million in FDI, whereas India received US$34,417 million in 2014 (Patra, 2017, p. 558). This only takes into consideration India as a whole. When broken down into regions, Mumbai and New Delhi (including the NCR) receive the most FDI out of all the regions in India, across all sectors (Department of Industrial & Promotion, 2017, p. 3). This is followed by Bangalore, Chennai, Ahmedabad and Hyderabad. However, this dispersion of FDI, which can be seen in table 2, do not take into consideration the different sectors and how much FDI goes to which sector. Out of these NCR, Bangalore, Chennai and Hyderabad is considered to Tier I cities, meaning that they are considered to have great universities and governmental research institutes (Patra, 2013, 562).

Table 1: Dispersion of FDI through regions in India (Department of Industrial & Promotion, 2017)

<table>
<thead>
<tr>
<th>Reserve Bank of India’s regional offices</th>
<th>2015-2016 (April – March)</th>
<th>% of total inflows (in terms of US$)</th>
<th>2016-2017 (April – March)</th>
<th>% of total inflows (in terms of US$)</th>
<th>2017-2018 (April – December)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mumbai</td>
<td>9511</td>
<td>24%</td>
<td>19654</td>
<td>45%</td>
<td>11541</td>
</tr>
<tr>
<td>New Delhi (Delhi, part of Up and Haryana)</td>
<td>12743</td>
<td>32%</td>
<td>5884</td>
<td>14%</td>
<td>6113</td>
</tr>
<tr>
<td>Bangalore</td>
<td>4121</td>
<td>10%</td>
<td>2132</td>
<td>5%</td>
<td>6446</td>
</tr>
<tr>
<td>Chennai</td>
<td>4528</td>
<td>11%</td>
<td>2218</td>
<td>5%</td>
<td>2756</td>
</tr>
<tr>
<td>Ahmedabad</td>
<td>2244</td>
<td>6%</td>
<td>3367</td>
<td>8%</td>
<td>787</td>
</tr>
<tr>
<td>Hyderabad</td>
<td>1556</td>
<td>4%</td>
<td>2195</td>
<td>5%</td>
<td>758</td>
</tr>
<tr>
<td>Kolkata</td>
<td>955</td>
<td>2%</td>
<td>50</td>
<td>0%</td>
<td>205</td>
</tr>
<tr>
<td>Kochi</td>
<td>90</td>
<td>0.22%</td>
<td>454</td>
<td>1%</td>
<td>171</td>
</tr>
<tr>
<td>Jaipur</td>
<td>50</td>
<td>0.12%</td>
<td>165</td>
<td>0.38%</td>
<td>96</td>
</tr>
<tr>
<td>Chandigarh</td>
<td>27</td>
<td>0.07%</td>
<td>6</td>
<td>0.01%</td>
<td>108</td>
</tr>
<tr>
<td>Bhopal</td>
<td>80</td>
<td>0.20%</td>
<td>76</td>
<td>0.17%</td>
<td>20</td>
</tr>
<tr>
<td>Panaji (Goa)</td>
<td>18</td>
<td>0.04%</td>
<td>83</td>
<td>0.19%</td>
<td>41</td>
</tr>
<tr>
<td>Kanpur</td>
<td>80</td>
<td>0.20%</td>
<td>8</td>
<td>0.02%</td>
<td>82</td>
</tr>
<tr>
<td>Bhubaneswar</td>
<td>6</td>
<td>0.01%</td>
<td>12</td>
<td>0.03%</td>
<td>10</td>
</tr>
<tr>
<td>Patna</td>
<td>43</td>
<td>0.11%</td>
<td>10</td>
<td>0.02%</td>
<td>10</td>
</tr>
<tr>
<td>Guwahati</td>
<td>10</td>
<td>0.02%</td>
<td>2</td>
<td>0.005%</td>
<td>8</td>
</tr>
<tr>
<td>Jammu</td>
<td>2</td>
<td>0.005%</td>
<td>0.2</td>
<td>0.0005%</td>
<td>0</td>
</tr>
<tr>
<td>Region not indicated</td>
<td>3936</td>
<td>10%</td>
<td>7162</td>
<td>16%</td>
<td>6790</td>
</tr>
<tr>
<td><strong>Total FDI inflows from all RBI’s regional offices</strong></td>
<td><strong>40001</strong></td>
<td><strong>100%</strong></td>
<td><strong>43478</strong></td>
<td><strong>100%</strong></td>
<td><strong>35941</strong></td>
</tr>
</tbody>
</table>
The uneven distribution of economic activities along with the vast regional variations within India, highlights some of the issues existing literature reveals with understanding the location choice of company’s FDIs. As previously mentioned, IB scholars have been criticized for neglecting spatial dimensions for understanding the location choice of companies FDIs. As prominent scholars however began expressing that more focus should be given to the spatial dimension, an increasing amount of studies tried to address this issue for understanding companies’ location choices (Beugelsdijk et al., 2010, p. 488; Dunning, 2009, p. 6; Kim & Aguilera, 2016, p. 136). Although attempts have been made, IB scholars however continue to be criticized for addressing this through a country-level approach (Beugelsdijk et al., 2010, p. 487; Kim & Aguilera, 2016, p. 147). Such criticisms are coherent with the earlier discussion about regional variations. It shows that a country-level of analysis is not sufficient for understanding where companies locate their R&D investments. Countries are heterogeneous and evidence show that companies select suitable sites for their investments based on characteristics on a subnational level (Nielsen et al., 2017, p. 63). For understanding regional variations and companies’ location choice for their FDIs, subnational units of analysis are therefore needed (Beugelsdijk et al., 2010, p. 487; Kim & Aguilera, 2016, p. 147).

In this regard, table 1 reveals that many clusters, have emerged in India. These clusters was promoted by the Indian government in order to boost the Indian economy and are mainly concentrated in knowledge intensive cities, where there are many universities and research institutions. The major locations for FDIs in terms of R&D investments include Bangalore, Hyderabad, Chennai, Mumbai, Ahmedabad and Delhi (Delhi, the national capital region or the NCR, includes Gurgaon, Noida and Ghaziabad) (Holtbrügge & Friedmann, 2015, p. 5; Patra, 2017, p. 562). By choosing knowledge hubs in India to set up their R&D, firms gain easier access to capabilities and resources that can improve R&D activities (Patra, 2017, p. 569).

2.3.3 Clusters

Clusters have attracted the attention of researchers, businesses and policy makers due to their unique contributions to both firms and regions (Rao & Balasubrahmanya, 2017, p. 91). They are overall seen as potential sources of productivity, competitive advantage and economic development (Porter, 2000, p. 23; Rao & Balasubrahmanya, 2017, p. 91). Existing cluster literature does however typically talk about industrial clusters (Rao & Balasubrahmanya, 2017, p. 91). Porter (2000, p. 16) describe these as “geographically proximate group of firms and associated institutions in related industries, linked by economic and social interdependencies”. He furthermore explains that the geographic scope of a cluster can “range from a single city or state to a country or even a group of neighboring countries” as it “relates to the distance over which informational, transactional, incentive, and other efficiencies occur” (Porter, 2000, p. 16). According to Rao & Balasubrahmanya (2017, p. 95), this is the most commonly used definition of clusters (see e.g. Bathelt et al., 2004, p. 36; Menzel & Fornahl, 2010, p. 212). The view of cluster in terms of taking the form of different types of geographical regions is further supported by for instance Florida (2003, p. 4). Clusters within India are however largely concentrated to cities (see e.g. Rao & Balasubrahmanya, 2017, p. 98). Although this study adopts Porter’s (2000, p. 16) definition of industrial clusters and recognizes that clusters can take the form of different types of geographical regions, it therefore refers to clusters in the form of cities.

As identified by Rao & Balasubrahmanya (2017, p. 95, 97), the initial emergence of a cluster can have its origin in policy or institutional factors (e.g. availability of certain companies and/or universities), natural factors (e.g. the availability of resources), locational factors (e.g. being
located near a trading route), or they can even emerge due to chance or historical accidents. Clusters thereafter evolve over time in a path dependent manner (Iammarino & McCann, 2006, p. 1027; Rao & Balasubrahmanya, 2017, p. 100; Neffke et al., 2011, p. 237). More specifically, clusters are believed to evolve along a life cycle with phases that have been synthesized in different manners by different researchers (Karlsson, 2010, p. 116). They do nevertheless generally involve phases of growing into existence, expanding and then experiencing exhaustion where they stagnate and eventually decline. Clusters must therefore renew themselves over time for continuing to facilitate benefits to firms and regions.

In regards to their benefits, clusters are in general considered especially attractive to foreign firms entering emerging markets, due to their ability to reduce the impact of institutional voids and liabilities of foreignness (Karna et al., 2013, p. 214; Petersen & Pedersen, 2002, p. 350). As explained by Beugelsdijk et al., (2010, p. 489), “distance is a multidimensional construct referring to cultural, administrative, geographical and economic distance”. Such distance makes it more difficult for firms to embed themselves into foreign locations, as they must learn and understand them for being able to effectively work under less familiar conditions (Cantwell, 2009, p. 39). Until then, companies may face extra costs, which are referred to as Liabilities of Foreignness (Beugelsdijk et al., 2010, p. 489; Nielsen et al., 2017, p. 65). Zaheer et al., (2009, p. 945) more specifically explain that “foreign firms exhibit a liability of foreignness [...] that arises partly from their lack of local knowledge and partly from their ‘outsider’ status”. Clusters can in such situations act supportive and help companies adapt to their new environment in a faster pace (Petersen & Pedersen, 2002, p. 350). Similarly, clusters provide stronger support for overcoming institutional voids in comparison to isolated locations, whilst also offering a relatively denser institutional environment to begin with (Karna et al., 2013, p. 214).

Further benefits of clusters can vary from one cluster to another, as each one is to some degree unique. Existing literature does nevertheless reveal three distinct models of clusters with different dominating benefits that drive their emergence. These are known as the pure agglomeration, the industrial complex and the social network (Gordon & McCann, 2000, p. 515; Iammarino & McCann, 2006, p. 1022; McCann & Sheppard, 2003, p. 657; Simmie & Sennett, 1999, p. 95). The pure agglomeration model is broadly speaking a cluster characterized by benefits that are external to the firm, such as knowledge spillovers and/or access to a pool of specialized labor. As explained by Porter (2000, p. 517) “this pure model of agglomeration presumes no form of co-operation between actors beyond what is in their individual interests in an atomized and competitive environment”. On the contrary, social network clusters are generally characterized by firms with non-opportunistic behavior. Firms cluster for the purpose of mutual learning and collaboration, as it is believed thatproximity can foster interaction. High levels of trust can therefore be found in social network clusters. In regards to Industrial-complex clusters, these emerge as firms seek to be close to suppliers and/or customers. Through such proximity, they mainly aim to reduce transaction costs (Gordon & McCann, 2000, p. 519).

With different dominating benefits, each distinct type of cluster can prove fruitful for different situations (Rao & Balasubrahmanya, 2017, p. 95). In today’s global environment, however, Porter (1996) argues that it is the more dynamic advantages of clustering that are of special importance (Huggins & Izushi, 2011, p. 198). In this regard, he refers to advantages that “revolve around the rate of learning and the capacity for innovation” (Porter, 1996 cited in Huggins & Izushi, 2011, p. 198). Industrial clusters that builds on access to and efficient use of knowledge can accordingly facilitate both learning and innovation, mainly through the geographic proximity to different actors that it enables. Such proximity to for instance suppliers,
customers and competitors encourages both formal and informal interaction, through which people and firms can increase their stock of knowledge (Rao & Balasubrahmanya, 2017, p. 95). Such knowledge can for instance help firms control and monitor arising trends and progress, which in turn can help guide their own direction. It overall reduces innovation uncertainty, stimulates innovative capacity and have the ability to help firms become more competitive (Bathelt et al., 2004, p. 18; Gilbert et al., 2008, p. 406). For benefiting from knowledge spillover opportunities in a cluster, one must however possess absorptive capacity.

Cohen & Levinthal (1990, p. 128) introduced the concept of absorptive capacity whilst arguing that "the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends is critical to its innovative capabilities". This has then since been supported by researcher such as Rao & Balasubrahmanya (2017, p. 96) and Zhang et al. (2010, p. 973). Similarly, Bathelt et al. (2004, p. 18) argues that knowledge serves little purpose unless a firm can at least understand it. The mere access to knowledge does therefore not automatically benefit a firm. Instead a firm’s ability to identify, internalize and utilize knowledge spillovers is moderated by their absorptive capacity. In this regard, Bathelt et al. (2004, pp. 19-20) highlight that firms must have (1) diverse preexisting knowledge for recognizing the value of externally produced knowledge, and (2) an ability to transfer such knowledge within the firm through some degree of internally overlapping knowledge. When locating in a cluster one must however be aware that the spread of knowledge goes both ways – it increases the likelihood of gaining new knowledge, but it also makes it likely that internal knowledge will spill over to others (Cantwell, 2009, pp. 38-39). Some argue that this can drive industry leaders away from clusters, but in this regard Cantwell (2009, pp. 38-39) suggest that such firms may rather have benefited through an excelling ability to embed themselves in such environments. In regards to cluster benefits, Porter (2000, p. 249) further explains that “the potential advantages of clusters in perceiving both the need and the opportunity for innovation are significant, but of equal importance can be the flexibility and capacity to act on them quickly”. For better understanding the locational characteristics that enables this, he has constructed a model for determining the place characteristics of a geographic region.

2.3.4 Porter’s Diamond Model
According to Holtbrügge & Friedmann (2015, p. 7), Porter’s Diamond Model “conceptualizes the most important antecedents of a regions’ competitiveness”. It emphasizes the importance of place as explained by Cortright (2006, p. 14), and is thereby commonly used for determining the locational characteristics of geographical regions (see e.g. Anil et al., 2007, p. 595; Cook et al., 2012, p. 1113; Dögl et al., 2012, p. 194). Cortright (2006, p. 5) even refers to it as Porter’s model of cluster interaction. The model was developed based on a study of ten countries, each considered important trading partners within different industries (Anil et al., 2007, p. 594; Grein & Craig, 2007, p. 305; Porter, 1990a, p. 74). The examined nations more specifically include Germany, Denmark, Italy, Sweden, the United Kingdom, Singapore, Korea, Japan, Switzerland and the United States. By studying these countries, Porter (1990a) aimed to understand how they became competitive in their respective successful industries (Holtbrügge & Friedmann, 2015, p. 11; Porter, 1990a, p. 74). In doing this, Porter (1990a) found that there are four broad aspects that individually, and as a system, constitute the environment that drive firms, industries and nations towards success (Anil et al. 2007, p. 595; Holtbrügge & Friedmann, 2015, p. 10; O’Shaughnessy, 1996, p. 12; Porter, 1990a, p. 78; Porter, 2000, p. 20; Yang et al., 2008, p. 39).

The interrelated attributes of Porter’s Diamond Model include factor conditions, demand conditions, the existence of related and supporting industries, as well as how existing firms are organized in terms of their strategy, structure and rivalry (Porter, 1990a, p. 78; 2000, p. 29). As
explained by Yang (2008, p.39), the effect of each attribute is affected by the state of the others, and they can thus both constrain and stimulate each other towards becoming more or less favorable. In this regard, Porter (1990a, p. 85) especially highlights geographic proximity and local rivalry. He explains that local rivalry amongst firms, intensified by geographic proximity, can stimulate improvements in the other attributes of the diamond - for instance by making the local demand more sophisticated, which in turn further pressures companies to become more innovative (Porter, 1990a, p. 86). Besides the four interrelated aspects, two exogenous factors that also can facilitate or constrains a regions competitiveness have been identified. These include chance and governments (see Figure 5). Whilst conducting his study, Porter (1990a) furthermore found that “an industry’s competitiveness was geographically concentrated typically in a single town or region” (Anil et al. 2007, p. 595). Although the model was built for analyzing competitiveness on a national level, many have accordingly argued that Porter’s Diamond Model can be used for determining the attractiveness of subnational regions as well (see e.g. Anil et al., 2007, p. 595; Cook et al., 2012, p. 1113; Dögl et al., 2012, p. 194). It has consequently been used for studying different types of geographical regions, including clusters. The common use of the model does however not suggest that it is without criticism (Anil et al., 2007, p. 596; Holtbrügge & Friedmann, 2015, p. 10)

Porter’s Diamond Model is often criticized for not being precise. The model is described in a qualitative manner and many have consequently argued that it is difficult to measure the models different attributes (Anil et al., 2007, p. 595; Cartwright, 1993, p. 55; Davies & Ellis, 2002, p. 1203; Holtbrügge & Friedmann, 2015, p. 11). It has also been criticized for building on observation of mainly manufacturing industries in developed countries, making its explanatory ability of success in emerging markets questionable (Anil et al., 2007, p. 595; Holtbrügge & Friedmann, 2015, p. 11; Grein & Craig, 2007, p. 305; O’Shaughnessy, 1996, p. 14). Similarly, Holtbrügge & Friedmann (2015, p. 11) as well as Dunning (1993, p. 7) argues that it does not take into consideration the impact of foreign firms in a nation, as it only focuses on the domestic characteristics of the region in matter. The limitation of Porter’s Diamond Model has nevertheless increasingly been addressed. Anil et al. (2007, p. 609) do for instance use the model in the Indian context and thereby show that it is a helpful framework, whilst however highlighting that some differences exist in regards to what determines the success and competitive advantages of manufacturing industries in developed countries and knowledge intensive industries in developing countries. Similarly, Cartwright (1993, p. 55) has adjusted the model so that it can be used for quantitative studies, whilst Holtbrügge & Friedmann (2015, p. 11) has taken into consideration the influence of both domestic and foreign firms when empirically using the model. The applicability of the model is thus revealed as supported by the frequent use of the model in a variety of settings, although it may require some adjustments before being applied.
Factor Conditions

Factor conditions refer to the “factors of production [...] necessary to compete in a given industry” (Porter, 1990a, p. 78). This includes labor, land, natural resources, capital and infrastructure (Porter, 2000, p. 20). These can further be regarded in terms of basic and advanced factors. Whilst natural resources, physical resources, unskilled labor and capital resources can be considered basic, advanced factors include highly educated human capital and infrastructure (Anil et al., 2007, p. 599; Dögl et al., 2012, p. 194). Depending on the availability or lack of factors of productions, the success of firms and industries can be facilitated or constrained. However, when it comes to competitiveness, it is less about what you have and more about what you do with what you have (Porter, 1990a, p. 79; Yang, 2008, p. 39). As explained by Porter (1990a, p. 79), one “does not inherit but instead creates the most important factors of production – such as skilled human resources or a scientific base”. Such advanced factors of production are increasingly important in today’s business environment, as they offer more sustainable sources of advantage (Anil et al., 2007, p. 599). Porter (1990a, p. 79; 2000, p. 600) further explains that factors of productions should continuously improve in efficiency, quality and be specialized towards the needs of a particular industry. This helps improve productivity whilst also making the factors more unique and less imitable (Porter, 1990a, p. 79; Porter, 2000, p. 600). Regions can subsequently be competitive within the industries that they are successful at creating factors of productions. In regards to R&D specifically, existing literature reveals that the availability of low cost skilled human capital and the presence of universities and other research centers are considered important factors (see e.g. Demirbag & Glaister, 2010, p. 1538-1539).

When it comes to R&D, a consensus exists in regards to the importance of skilled human capital. Manning et al. (2008, p. 41) explains that many foreign firms have entered emerging markets due to the declining availability of such talent in the western world. He explains that emerging markets, such as India, has on the other hand had an increasing amount of people with science and engineering skills, and that many firms thereby invest in these countries for
accessing competence. In support of the importance of human capital, Demirbag & Glaister (2010, p. 1534), Erken & Kleijn, (2010, p. 203) as well as Siedschlag et al. (2013, p. 1428) have also identified human capital as an important location determinant for R&D investments. This has likewise been concluded in studies that have examined the role of skilled human capital in the Indian context specifically (Holtbrügge & Friedmann, 2015, p. 21; Mukim & Nunnkenkamp, 2012, p. 888). Kumar (2001, p. 163) does for instance explain that the competitive advantage of India is the countries availability of highly skilled and low cost human capital. Although some may argue that skills are more important than costs (see e.g. Erken & Gilsing, 2005, p. 1089), several researchers suggest that cost of labor is a significant advantage of India as a location for R&D investments (see e.g. Demirbag & Glaister, 2010, p. 1554; Kumar, 2001, p. 159). Anil et al., (2007, pp. 599-600) nevertheless further explains that there is an abundance of highly skilled human capital in the Indian cluster Bangalore, and that firms often hire the best graduates regardless of their specialization. This does indicate a contradiction with Porter (1990a, 79), who as previously mentioned suggests that factors of productions should be highly specialized for meeting the needs of a specific industry. Instead Anil et al.’s (2007, pp. 600) study reveal that a common attitude amongst firms in India is that as long as they are talented problem solvers and independent learners, personnel can learn as they work and must thus not have industry specific skills. A more generic science and/or engineering background of some sort is thus often considered sufficient for R&D activities (Anil et al., 2007, pp. 600).

Given the importance of the availability and cost of skilled human capital, one can naturally assume that the presence of universities and research centers are relevant location determinants of R&D investments as well. As explained by Patra (2017, pp. 562-564), India has a number of different R&D clusters, all which tend to be located around knowledge hubs where several universities and research centers exist. Bangalore is for instance one of the earliest and biggest clusters in India, and it has several institutions that focus on science and engineering (Anil et al., 2007, 599; Rao & Balasubrahmany, 2017, p. 90). Through proximity to different universities, firms with R&D investment in this country can take advantage of the science and engineering students that graduate from mainly the nearby universities (Patra, 2017, p. 564). The importance of universities and research centers for the location of R&D investments is furthermore related to the knowledge that these actors can provide. Demirbag & Glaister (2010, pp. 1538-1539) is for instance one of many who highlight that they are sources of knowledge that can increases the attractiveness of a region. Patra & Krishna (2015, p. 1) does however show that foreign firms in India relatively rarely collaborate with them. They instead find that foreign firms mainly collaborate amongst each other, and they collaborate more with domestic firms when compared to their linkage with local universities and research institutions. This thereby suggests that knowledge is generally gained from institutions in India through a more indirect manner. The role of universities and other research institutes for determining the location of R&D investments is however regardless considered important (Siedschlag et al., 2013, p. 1420; Thursby & Thursby, 2006, p. 28, pp. 2-3).

**Demand Conditions**

Demand conditions refer to the size and nature of local demand (Porter, 1990a, p. 82). This can have a large impact on the success of firms and industries in a region. However, although both market size and nature of local demand are relevant location determinants for R&D investments, one could argue that the former is mainly significant for investments with market seeking purposes. In this regard, Barge-Gil & López (2014, p. 1634) explains that “demand pull and appropriability have a higher effect on development, while technological opportunity is more influential for research”. Similarly, Erken & Kleijn (2010, p. 208) categorizes market size as a significant location determinant for R&D investments that seek to exploit existing
knowledge in a foreign market. Mukim & Nunnenkamp (2012, p. 888) furthermore highlight the importance of market potential for choosing a location for market seeking FDIs in the Indian context specifically.

Market sizes can signal the potential for successful diffusion of a company’s offerings. Yang (2008, p. 39) for instance explains that “small markets are quicker to become saturated, whereas large markets offer more potential for firms to grow”. The latter can more specifically benefit a firm both in terms of cost and performance. In this regard, Holzbrügge & Friedmann (2015, p. 13) specifies that favorable demand conditions can for instance help a firm enjoy economies of scale, through which productivity can be improved. For R&D investments, it is commonly believed that the potential of large market sizes encourages firms to locate closer to such regions (Holzbrügge & Friedmann, 2015, p. 13; Kumar, 2001, p. 159). Through proximity to such demand conditions, companies and their R&D functions can more efficiently understand their target markets wants and needs, so that products and services can be developed and adjusted accordingly. The greater the market size is, the greater the need is to make R&D investments in a region for adapting existing offerings to the local market (Erken & Kleijn, 2010, p. 208). Anil et al., (2007, p. 601) and Siedschlag et al. (2013, p. 1432) do however suggest that market size alone is not a sufficient indicator of a market’s potential. They both essentially highlight that although a market is large, high competition and saturation may still be possible, thereby impacting how favorable a region’s demand conditions is. One could therefore argue that the attractiveness of demand conditions must further be determined in terms of market growth and saturation. In regards to the later however, this depends on the industry and is thus less relevant for considering the location of R&D investments in general. The importance of both market size and market growth as a location determinant of R&D investments in India is nevertheless further suggested by Dögl et al. (2012, p. 199), Holzbrügge & Friedmann (2015, p. 13, p. 10) and Thursby & Thursby (2006, p. 2).

Although market size and market growth are relevant location determinants for R&D investments, Porter (1990a, p. 82) argues that the most important aspect about demand conditions for a firm’s competitiveness is its nature. Similarly, Dögl et al. (2012, p. 195) explains that “the quality of home demand is more important than its quantity”. According to Porter (1990a, p. 82) the nature of demand in a region can impact the performance of companies, in terms of the products and services developed. He explains that a sophisticated market with advanced demands, puts more pressure on firms to be innovative for living up to consumers’ expectations. A firm can thus benefit from a demanding market as it pushes them to continuously upgrade and improve their offerings. This drives firms towards developing more sustainable competitive advantages (Dögl et al., 2012, p. 195; Porter, 1990a, p. 82). In regards to R&D specifically, the nature of demand can through this manner shape the direction of both research and development activities. It has to our knowledge not been specified as a location determinant for R&D investments in existing literature, but one could nevertheless argue that it is an important consideration for firms seeking to make R&D investments for both market and knowledge seeking purposes. More specifically, a market with early indication of trends and sophisticated demand can reduce uncertainty about undertaken activities (Porter, 1990a, p. 82; Porter, 2000, pp. 23-24). Proximity to such demand can be valuable as it facilitates interaction with customers (Bathelt et al., 2004, pp. 36-37; Rao & Balasubrahmanya, 2017, p. 95), thereby being relevant for company’s location choices (Bathelt et al., 2004, pp. 36-37).

**Related & Supporting Industries**

This attribute of the Diamond Model refers to the presence or absence of related and supporting industries (Porter, 1990a, p. 78). The former does more specifically refer to industries that in
one way or another is similar to the industry one is in. In this regard, Rao & Balasubrahmanya (2017, p. 95) do as previously mentioned explain that firms in a cluster can be similar in two ways: (1) through using the same technology and/or (2) through having essentially the same output and similar inputs. In regards to supporting industries, this mainly refers to the presence of relevant suppliers in a region. Suppliers can impact the quality and productivity of the firms that use their offerings. Porter (1990a, pp. 82-83) thereby argues that firms benefit from suppliers that are internationally competitive. By having suppliers that “deliver the most cost-effective inputs in an efficient, early, rapid and sometimes preferential way” such strengths can in turn positively affect firms that use their products and/or services from both a cost and performance perspective (Porter, 1990a, pp. 82-83). He nevertheless also argues, that “far more significant than the mere access to inputs, however, is the advantage that home-based related and supporting industries provide in innovation and upgrading – an advantage based on close working relationships” (Porter, 1990a, p. 83). He here highlights how proximity to related and supporting industries provide “short-lines of communication, quick and constant flow of information and an ongoing exchange of ideas and innovation”. This is further supported by for instance Rao & Balasubrahmanya (2017, p. 95), who as previously mentioned explain that proximity facilitates interaction amongst different actors in a region.

In regards to the presence of supporting industries, proximity to suppliers enable firms to benefit from lower transportation costs and reduced procurement risks (Holtbrügge & Friedmann, 2015, p. 14; Lal & Mengistae, 2005, p. 14). It can further enable the matching of suppliers and customers, as such trading relations often are created locally according to (Bernard et al., 2015, p. 1). Proximity to supporting industries is for R&D activities more specifically also believed to enable closer cooperation through which knowledge can be shared and improve the performance of both parties (Porter, 1990a, p. 83). In this regard, Cortright (2006, p. 14) explains that “cooperation between firms and their suppliers leads to innovation because these firms must exchange information and knowledge about new processes and products”. Given the benefits of proximity to suppliers, many argue that supporting industries are an important location determinant for R&D investments. As explained by Porter (1990a, p. 83) “companies have the opportunity to influence their suppliers’ technical efforts and can serve as test sites for R&D work, accelerating the pace of innovation”. The role of supporting industries as a location determinant is further supported by Gordon & McCann (2000, p. 518) who explain that one of the dominating type of clusters, i.e. industrial complex clusters, are even characterized by the presence of different trading partners. The role of proximity to supporting industries for the location of R&D activities is further supported by Holtbrügge & Friedmann (2015, p. 14). He highlights this for R&D investments in the context of India.

Similar to supporting industries, related industries provide opportunities for increasing a firms stock of knowledge and improving their activities. This can for instance be achieved through monitoring and control. Bathelt et al. (2004, p. 36) does in this regard explain that “firms benefit from their co-location through which they are well informed about the characteristics of their competitors’ products and about the quality and cost of the production factors that they use”. Similarly, Porter (2000, p. 23) explains that proximity to firms with similar activities allows one to compare each other’s work, thereby getting a better understanding of one’s performance relative to others. Beyond simply formal and informal interaction, locating in regions where similar firms exist can further provide access to knowledge through for instance labor pooling (Ter Wal & Boschma, 2011, p. 923). As people often change jobs within the same geographical area, a firm can benefit from the knowledge that human capital brings with them from other related firms. It does however also involve a risk where one’s knowledge is also likely to be ‘leaked’ to others in a similar manner (Cantwell, 2009, pp. 38-39). The opportunities for
knowledge spillovers is nevertheless considered one of the main benefits of locating R&D investments in regions with related firms (Rao & Balasubrahmanya, 2017, p. 95). Given such benefits, many further explains that regions with related industries, whether they are many or only include one dominant industry player, tend to create a "place-to-be effect" (Erken & Kleijn, 2010, p. 203; Faeth, 2008, p. 168; Kumar, 2001, p. 159). Related industries, as well as supporting industries, can thereby act as signal of a region’s attractiveness.

**Firm Strategy, Structure and Rivalry**

This attribute refers to the conditions in a region that impact how firms are created, organized, and managed, what goals firms and individuals have, and what the nature of local rivalry is (Anil et al, 2007, p. 603; Dögl et al., 2012, p. 194; Porter, 1990a, p. 78). It is a broad attribute and has consequently been criticized for being difficult to understand (Anil et al, 2007, p. 603; Sledge, 2005, p. 30). It refers to regional conditions that impact firm’s strategy, structure and rivalry, but does for instance not specify exactly what those conditions are. Porter (1990a, p. 83) simply explain that some regions tend to have small to medium sized firms that are privately owned, whilst other for instance have hierarchical organizations lead by managers with technological backgrounds. Not only does he fail to specify what type of conditions he is talking about, but he does also not clarify what resulting strategies and structures can be considered favorable or unfavorable. Some clarification is provided in a latter work where Porter (2000, p. 20) states that it is a regions rules, incentives and norms that dictate the resulting strategy, structure and rivalry, but it does not fully eliminate the issues around this element (Anil et al, 2007, p. 618; Sledge, 2005, p. 30). This is brought to light by Sledge (2005, pp. 22; 30) who has applied Porter’s Diamond Model to the global automotive industry. He finds that all elements of the model have generally impacted the competitiveness of national regions, except for the ‘firm strategy, structure and rivalry’ component (Anil et al, 2007, p. 618; Sledge, 2005, p. 30). In this regard, he explains that “It is highly unlikely that firm strategy and rivalry are unrelated to firm performance” and suggest that a possible reason for his results is that “strategy, structure and rivalry is not represented accurately” (Sledge, 2005, p. 30). Similarly, Anil et al. (2007, p. 596) highlight that the role of firm strategy, structure, and rivalry needs specification.

As suggested by Sledge (2005, p. 30), one can nevertheless assume that local rivalry can have an impact on the competitiveness of a region and its ability to attract firms. In this regard, Porter (1990a, p. 85) does at least highlight that intense domestic rivalry can be considered favorable. He explains that “the presence of strong local rivals is a final, and powerful, stimulus to the creation and persistence of competitive advantage” (Porter, 1990a, p. 85). It can as previously mentioned be considered one of the most important elements of the diamond because it has a significant ability to stimulate the other aspects of the model. It can for instance signal that there is a need for talent, and thus attract highly skilled human capital to a region (Porter, 1990a, p. 85). Related to this, Porter (1990a, p. 85) explains that participating firms “compete not only for market share but also for people, technological excellence and even 'bragging rights'”. Nevertheless, through domestic rivalry’s ability to improve the overall diamond of a region, one can argue that local competition is beneficial for R&D investments. It can however more directly be considered an attractive attribute because of how it pressures firms towards continuously becoming more productive and innovative. It can drive them towards continuously lowering costs, improving quality and service as well as creating new products and processes (Porter, 1990a, p. 85). This further suggests that there are valuable knowledge spillovers that can be accessed in a region with domestic rivalry. Such rivalry can further be magnified by having many related firms in a concentrated geographic area. Through dense
geographic clusters, one can also assume that a ‘place-to-be’ effect can be triggered, thereby attracting R&D investments as suggested by Erken & Kleijn (2010, p. 203).

Government
Porter (1990a, p. 87) explains that some believe governments should install policies that directly benefit companies and industries, whilst others believe in free markets where an economy is handled by the invisible hand (Porter, 1990a, p. 87). In this regard, he however argues that none of the extremes are correct. Instead Porter (1990a, p. 87) states that governments cannot improve performance, only companies can. He does however believe that they have a powerful role through which they can either inhibit or stimulate the performance of firms and industries (Porter, 1990a, p. 87). He argues that “government’s proper role is as a catalyst and challenger; it is to encourage - or even push - companies to raise their aspirations and move to higher levels of competitive performance, even though this process may be inherently unpleasant and difficult” (Porter, 1990a, p. 87). Governments are more specifically believed to have the power to either upgrade or inhibit clusters by impacting the four key attributes of the Diamond Model (Anil et al., 2007, p. 595; Dögl et al., 2012, p. 194; Porter, 2000, p. 28). Some examples of methods through which governments can impact the different components include the following remedies: focus on specialized factor creation, avoid intervening in factor and currency markets, enforce strict product, safety and environmental standards, sharply limit direct cooperation amongst industry rivals, promote goals that lead to sustained investments, deregulate competition, enforce strong domestic antitrust policies and reject managed trade (Porter, 1990a, p. 87-89). Porter (1990a, p. 89) does however further explain that policies may fail, but that the goal should nevertheless be to instill remedies that seek to make adjustments through which an action eventually will not be needed and can be removed.

The growing importance of interaction between governments and MNEs has according to Xiaohua et al. (2008, pp. 39) recently become more recognized by scholars such as Dunning (1993) and Stopford (2002). Xiaohua et al. (2008, pp. 39-40) especially highlight this in the context of emerging markets as they explain that many companies from emerging markets are encouraged by their governments to expand internationally. In this regard, Cai (1999, p. 873) does for instance highlight China who has provided domestic firms with financial incentives. Such incentives for expanding internationally can also be found in the case of India (Athreye, 2005, p. 402). Governments may however not only seek to encourage outward FDI, but also inward FDI. Attracting FDI, and R&D investments specifically, can as previously discussed play an important role in stimulating a region’s economy (Erken & Kleijn 2010, pp. 204-205). In this regard, federal governments play an important role, but Anil et al. (2007, pp. 697-608) do also highlight the role of more local policy makers in the context of India. They can for instance impact the attractiveness of a region in terms of how they for instance spend their budgets and how they implement state level policies. They can even have the power to form their own local policies (Anil et al., 2007, pp. 607-608). Both governments and local policy makers can thus act as ‘catalyzers’ or ‘challengers’. They can play an important role in the perceived attractiveness of locations, by impacting the four attributes of the diamond model with a direct or indirect aim of subsequently influencing the choice of location made for R&D investments.

Chance
Chance refers to unexpected events and occurrences (Dögl et al., 2012, p. 194; Holtbrügge & Friedmann, 2015, p. 10). It is an exogenous factor that can have both positive and negative impact on the other attributes, similarly to the Government component of Porter’s Diamond Model (Holtbrügge & Friedmann, 2015, p. 10). Some examples of chance occurrences related
to R&D can for instance include “acts of pure inventions, major technological discontinuities and surges of world or regional demand” (Holtbrügge & Friedmann, 2015, p.10). It can also include events such as “oil shocks, political decisions by foreign governments, and wars” for instance (Anil et al., 2007, p. 609). Although chance can be an impactful attribute, this factor will hereon not be considered for the study at hand. This is in accordance with how the chance component has been treated by scholars such as Holtbrügge & Friedmann (2015, p. 10) and Dögl et al. (2012, p. 194). They namely argue that chance is a highly unpredictable element, which is further supported by Porter (1990a) and Cartwright (1993) according to Dögl et al. (2012, p.194). It is even reflected by how Porter (1990a, 2000) barely addresses this component.

2.4 Space
Although Porter’s Diamond Model is a common theory for evaluating different geographic regions (see e.g. Anil et al., 2007, p. 595; Cook et al., 2012, p. 1113; Dögl et al., 2012, p. 194), this model fails to take into consideration ‘space’, as suggested by the Organization, Space, and Place framework. Porter’s Diamond Model does instead emphasize the importance of ‘place’ characteristics and highlights how they can strengthen the competitive advantage of firms, industries and regions (Cortright, 2006, p. 14). Based on having different locational advantages, a region is in turn believed to attract firms. Many of the place characteristics that are considered beneficial to firms essentially suggests that clusters are attractive locations for R&D investments, due to the benefits of proximity that they enable. It facilitates reduced costs and increased interaction through which a firm can become more productive and innovative. However, although proximity is important for knowledge creation through interaction, Porter (1990a, p. 83) highlights that proximity alone is not a recipe for success. Beyond the trade and transaction costs that can be reduced through proximity, having shorter geographic distances only facilitates interaction. It does not guarantee it. As explained by Porter (1990a, p. 83) “interaction is mutually advantageous and self-reinforcing, but it does not happen automatically, it is helped by proximity, but occurs only because companies and suppliers work at it”. Firms do thereby benefit from relationships and networks that are built through actively interacting with others.

Networks
The importance of actively interacting with others is supported by Ter Wal & Boschma (2011, p. 920) (see also Bathelt et al., 2004, p. 38; Boschma & Ter Wal, 2007, p. 177; Letaifa & Rabeau, 2013, p. 2071). They explain that existing cluster literature exaggerates the role of geographic proximity, whilst arguing that the role of social connections and networks is being underestimated. Networks is according to Ter Wal & Boschma (2011, p. 920) a spatial concept. It refers to ones’ social and business ties, and can from the perspective of a firm involve both external and internal relations (Lam, 2003, p. 675). Whilst the former refers to relations outside a firm, the latter refers to relations amongst actors within the hierarchy of a firm. Such networks can more specifically be characterized in terms of their structure (e.g. size and density) and interaction (e.g. which actors are involved and what type of relation they have) (Coviello, 2006, p. 716). In regards to R&D investments, Lam (2003, p. 676) highlight that networks are important means through which organizations learn and increase their stock of knowledge. They emphasize the importance of linking internal networks with external ones, whilst stating that “external networks and the local embeddedness of the subsidiary R&D units are critical to organizational learning and innovation within MNEs” (Lam, 2003, p. 699). This role of networks is further supported by Tsai & Ghoshal, (1998, p. 464) who show that the social capital generated through networks can have a significant impact on product innovation.
The manner through which networks within a cluster can provide access to knowledge is more specifically explained by Bathelt et al., (2004, p. 38). They explain that the co-location of different actors provides many opportunities for interaction, during which one can build a local network and participate in the exchange of knowledge and information (Bathelt et al., 2004, p. 38). Given the variations of how networks can look in terms of structure and interaction, Boschma & Wal (2007, p. 181) suggests that knowledge is unevenly distributed, but having a local network nevertheless helps one increasingly access the ‘local buzz’ of a region. This refers to the spontaneous and fluid spread of knowledge and information among actors within a region. Through building a local network and interacting with others, one can more or less automatically access such buzz. Bathelt et al., (2004, p. 38) explains that it can instance be accessed during “negotiations with local suppliers, in phone calls during office hours, while talking to neighbours in the garden or when having lunch with other employees”. Similarly to Gertler (1995, p. 16), they further explain that once you have a local network, “actors continuously contribute to and benefit from the diffusion of information, gossip and news by just ‘being there’” (Bathelt et al., 2004, p. 38).

Although local network linkages provide valuable sources of knowledge through which organizational learning, innovation and essentially performance can be improved, the emphasize on local networks suggest that knowledge does not transfer across long distances (Boschma & Wal, 2007, p. 181). It is commonly believed that knowledge exchanges are limited to close geographic regions due to its sticky and tacit nature (Bathelt et al., 2004, p. 38; Boschma & Wal, 2007, p. 181; Gilbert et al., 2008, p. 410), thereby reinforcing the importance of geographic proximity. Boschma & Wal (2007, p. 181) do however highlight that knowledge flows through networks, and that “networks do not require permanent co-location for interactive learning to take place”. Instead it is suggested that knowledge exchanges can take place amongst actors in geographically distant locations through organized interaction (Bathelt et al., 2004, p. 42; Torre & Rallet, 2005, p. 57). Not only is knowledge exchanges possible across long distances, but they are also highly important. If knowledge is only sourced through interaction with actors within a specific region, a cluster can namely risk ‘lock-in’ (Bathelt et al., 2004, p. 42; Boschma & Wal, 2007, p. 181). It can risk becoming introvert to the extent that its agglomeration economies slowly diminish, leading to a cluster decline. Network linkages that stretches beyond the borders of a region can however bring in novel knowledge and information which can strengthen a cluster’s learning ability (Uzzi, 1997, p. 35). It can strengthen its overall absorptive capacity through which a region can renew itself over time and extend its life cycle (Bathelt et al., 2004, p. 2; Boschma & Wal, 2007, pp. 181-182; Rao & Balasubrahmanya, 2017, p. 96).

Given the importance of both local and global network linkages, it is suggested that attractive locations for R&D investments should have both (Bathelt et al., 2004, p. 32; Boschma & Wal, 2007, pp. 181-182; Lam, 2003, p. 676). Not only does it important for sourcing knowledge through interaction, but it is also important from a cost perspective. Given the high costs involved in R&D investments, one can assume that a long cluster life cycle is preferred.

2.5 Theoretical Framework

The literature review suggests that merging insights from IB and EG for studying clusters could be a fruitful approach for addressing the research question and research purpose at hand. IB scholars do more specifically provide us with the OLI framework, which highlights how MNE’s location choices are determined by an interplay of ownership- location- and internalization advantages. They do however not consider the element of space. They generally only focus on location advantages in terms of place characteristics as further shown by Porter’s Diamond
Model. Space elements in terms of the role of networks are however also important. This is highlighted by EG scholars. Following McCann’s (2011, pp. 309-310) suggestion, the OLI framework has thus been merged with Beugelsdijk et al.’s (2010, p. 489) Organization, Place and Space framework as shown in figure 6. Porter’s diamond model has subsequently been used for addressing place attributes, whilst Network linkages has been used for addressing the space attributes of a region.

![Theoretical framework](image)

In terms of organization, for instance Kim & Aguilera (2016, p. 150-151) has suggested the use of a value chain approach where locations are considered based on what type of activities are conducted. This would in our case be R&D activities. It has however become evident that many do not recognize the inherent difference between research-oriented and development-oriented activities. Their inherent differences suggest that they prosper under different locational settings. Whilst some regional characteristics may attract research oriented activities, others may attract development activities. Research and development activities are thereby likely to have different geographical distributions. A separation between research (exploration) and
development (exploitation) activities has thereby been made for better determining which regions can be considered attractive locations for them respectively. Regional characteristics can more specifically be studied in terms of both ‘place’ and ‘space’ aspects.

In regards to place characteristics, Porter’s Diamond Model provides a relatively inclusive framework that is commonly used for analyzing the competitiveness of regions such as clusters. It provides us with a framework involving four key attributes (factor-, demand-, industry-, and firm conditions), as well as two exogenous attributes including government and chance. These have been reviewed in terms of what locational attributes are more specifically relevant to consider from an R&D investment perspective. Such specifications are shown in the theoretical framework above (see figure 6). The framework also shows the space attributes that will be studied for addressing the research question and purpose at hand. In regards to space, network is a spatial concept that is considered important from an R&D investment. One can more specifically in this regard highlight the role of global and local linkages. Based on the literature review, it has become evident that the attractiveness of a region is positively influenced by the presence of both local and global network linkages. They together affect the absorptive capacity of a region and thus also the availability of novel knowledge. It also affects the long-term survival of a cluster. If there is no novel knowledge to be gained, the region will be considered less attractive and actors may even choose to leave the location.
3 Methodology

In this chapter, an explanation of how the above literature review has been conducted and helped us formulate the research question and purpose will be presented. This is followed by the underlying assumptions and methods used for addressing these. We conclude this chapter with discussions related to quality criteria, ethical considerations and practical limitations.

3.1 Literature Selection

In order to support our undertaken topic, the literature review is an important part (Bryman & Bell, 2015, p. 100). Bryman & Bell (2015, p. 101) argues that in the process of the literature review, one should identify the following: (1) what is already known about the area, (2) relevant concepts and theories, (3) what research methods and research strategies have been used in previous works, (4) are there any controversies in the area, (5) inconsistencies in the findings, and (6) unanswered research questions. This has acted as a guideline through our process of formulating the topic at hand.

To find relevant articles for our literature review, different databases accessed through Umeå University’s library have been used. We have for instance used Business Source Premier, Emerald Insight, Elsevier, Wiley, Sage Journals, Science Direct, Journal of Economic Geography and more. We also used Google Scholar when searching for articles that was not available through Umeå University’s library database. Our selected articles have been chosen based on their relevancy to our topic, but we also considered number of citations and whether the articles were peer reviewed. Due to some aspects of the topic having a long tradition of being researched, classic articles for different concepts and theories has been used as a basis. Along with this, we have as far as possible aimed to find more recent articles. Additionally, books found in Umeå University’s library, as well as official reports from relevant governments and organizations have been used.

The search for articles began by being broad. Due to not having a focus yet, broad keywords such as emerging markets, international business, innovation, offshoring and outsourcing was used. Commonly we aimed to find literature reviews through which we could gain some initial knowledge and a better overview of what is already known, what methods commonly have been used and what possible areas for future research exists. Through this learning process we could gradually begin to specify our topic. An initial key article in this case, was a literature review about emerging markets. Moving forward, we started using keywords such as location determinants, R&D, India, clusters, governance mode, geographic proximity, and eventually we found our way to economic geography. In order to focus our findings additionally, we combined these keywords with each other. We also used articles that were referred to in the articles found, especially when we noticed that certain names were often being referred to. By looking through the reference lists, both core articles and additional related articles were found. This enabled us to ensure that correct interpretations of core articles had been made, whilst also deepening our understanding.

From our literature review, we found that India as a whole had been relatively studied, but researcher did rarely take into consideration to what extent India is a heterogeneous country. Meaning, comparing different areas in India to each other, is still in an exploratory stage within research. Furthermore, we found that offshoring R&D to emerging markets is a recent phenomenon, and thus has not been satisfyingly studied upon. Findings such as these, helped us specify our topic for the purpose of formulating a previously unanswered topic.
3.2 Philosophical Approach

Before deciding on which research method is appropriate, researchers can benefit from identifying their research philosophy (Cunliffe, 2011, p. 649). Such assumptions are underpinning, as research philosophy “relates to the development of knowledge and the nature of that knowledge” (Saunders, 2012, p. 127). We will in the following section therefore consider the various stances of assumptions related to the nature of social reality and views of the world (ontology), as well as the nature and purpose of knowledge (epistemology).

Ontology

Ontology ask the question of how the researchers view the nature of social reality and their assumptions about the world (Cunliffe, 2011, p. 649; Morgan & Smircich, 1980, p. 492; Saunders et al., 2012, p. 130). Ontology is divided into objectivism, i.e. “…can and should [social entities] be considered objective entities that have a reality external to social actors”, and constructionism, i.e. “… [social entities] can and should be considered as social constructions built up from the perceptions and actions of social actors” (Bryman & Bell, 2015, p. 32). In other words, is reality viewed as a concrete given and external from individual behavior, or is reality viewed as imagined and as a projection of the human mind (Cunliffe, 2011, pp. 649-650; Morgan & Smircich, 1980, pp. 494-495).

In our study, we align with constructionism and thereby view social entities as being socially constructed. With our research, we want to understand the regional differences between the R&D city clusters in India from a Western MNE perspective. The main basis of our comparison is the experiences regarding the two locations of the employees from said MNE. Furthermore, with the qualitative nature of this study, the constructionist position is the most suitable.

Epistemology

The ontological stance shapes the way epistemology covers what is considered to be acceptable (or not acceptable) knowledge in a field of study (Bryman & Bell, 2015, p. 26; Saunders et al., 2012, p. 132). A positivist philosophy tries to imitate the way of natural sciences (Bryman & Bell, 2015, p. 27), and it is believed that there is an observable social reality which can be generalized (Saunders et al., 2012, p. 134). Positivism is considered to have a deductive approach, i.e. hypothesis-testing, and an inductive strategy, i.e. knowledge is arrived by gathering facts (Bryman & Bell, 2015, p. 28). Moreover, positivism tries as far as possible to conduct research in a value-free and objective manner (Saunders et al., 2012, p. 134). Another possible epistemology position is realism. It is similar to positivist philosophy in terms of being an approach akin to the ones used in natural science (Bryman & Bell, 2015, p. 28). According to the approach of realism, people experience the objective reality differently (Bryman & Bell, 2015, p. 29; Saunders et al., 2012, p. 135). Neither positivism nor realism are a fitting philosophy for this study. Since we have adopted the constructionist approach and thus accepted that the world is socially constructed, basis on nature science would be contradicting.

In direct contrast to positivism, there is interpretivism (Bryman & Bell, 2015, p. 28). This position considers the social actors to be fundamentally different from natural science, and thus cannot be subjected to the same laws. Researchers that follow the approach of interpretivism argues that “the social world of business and management is far too complex”, and to gain insight and understanding the differences between social actors should be looked at subjectively (Saunders et al., 2012, pp. 137). An important aspect of interpretivism is to have an empathetic stance as a researcher, since we want to get an understanding of their point of view (Saunders et al., 2012, p. 137). As to understand the role of networks within two different cluster in India, we want to study the subjectivity of others experiences. Following the same argument as above,
that the world is socially constructed, interpretivism is the most fitting philosophy for us to follow.

### 3.3 Research Approach
Connected to the chosen philosophical approach is the theoretical point of departure (Saunders, 2012, p. 143). There are two main research approaches: deduction and induction. Deduction bear close resemblance to natural scientific research in terms of being about generating and testing a hypothesis (Saunders et al., 2012, p. 143). It is the most common relationship that exist between research and theory (Bryman & Bell, 2015, p. 23). In deductive research, the theory and hypothesis come first, which is then tested (Bryman & Bell, 2015, p. 23; Saunders et al., 2012, p. 145). Inductive research is on the other hand about exploring data and building theory (Bryman & Bell, 2015, p. 23; Saunders et al., 2012, p. 146). It moves in the opposite direction from deduction, meaning that the empirical findings impact the theory that is being used. There is also a third research approach known as abductive where the two other research approaches are combined (Saunders et al., 2012, p. 148). Out of the three approaches, the most fitting to the aim and purpose of this study is the inductive research approach. We do not attempt to develop hypothesis and test theories as in deductive research, rather this study can be considered to have an inductive approach since a theoretical framework integrating insights from IB and EG literature has been created. The rest of the thesis builds on this framework as it helps gain an understanding of how our interviewees perceive the clusters in matter based on relevant locational characteristics identified from the existing literature and theories. To further do this, we aim to gather a large amount of data of the two R&D city clusters in India for which the inductive approach is suitable. Furthermore, the empirical data is what is shaping our thesis, since it is the deciding factor of which clusters in India will be studied.

### 3.4 Research Strategy
There are two main categories of research strategies, which are quantitative and qualitative approach (Bryman & Bell, 2015, p. 37). These two approaches should not be viewed as distinct categories that are not connected (Creswell, 2014, p. 3). Instead, quantitative and qualitative approaches should be viewed as two ends of a continuum (Newman & Benz, 1998 cited in Creswell, 2014, p. 3). Based on the earlier established philosophical stances, researchers are positioned on the continuum where their research tends to fall in a quantitative or qualitative direction (Bryman & Bell, 2015, p. 37; Creswell, 2014, p. 4). The quantitative and qualitative approaches can also be combined, and thus create a third, mixed method (Bryman & Bell, 2015, p. 39) which fall in the middle of this continuum (Creswell, 2014, p. 3). Qualitative research, compared to quantitative research, “...emphasis words rather than quantification in the collection and analysis of data...” (Bryman & Bell, 2015, p. 38). In qualitative research, the researchers base their assumptions on the participants’ perception and experiences (Creswell, 2009, p. 195). Moreover, qualitative research favor inductive approaches to research, interpretivism and constructionism (Bryman & Bell, 2015, p. 38). Qualitative research has been criticized for being too subjective and impressionistic and its unstructured nature making the studies difficult to replicate (Bryman & Bell, 2015, pp. 413-414).

The other research strategy is quantitative research, which emphasize on testing theories (Bryman & Bell, 2015, p. 37). Within quantitative research, researchers view the social reality as an external and objective reality (Bryman & Bell, 2015, p. 38). In contrast to the qualitative research, the quantitative research favors deductive approaches such as positivism and objectivism (Saunders et al., 2012, p. 162). Criticism against quantitative research argues that social reality needs to be distinguished from “the world of nature” (Bryman & Bell, 2015, p. 179). Meaning, quantitative researchers tend to ignore that people and groups interpret their
social reality differently from each other. In quantitative research “relationships between variables creates a static view of social life” (Bryman & Bell, 2015, p. 179). In contrast, qualitative research takes a more subjective approach. Earlier we argued for constructionism and interpretivism over objectivism and positivism, thus quantitative research does not align with our study. We will therefore be using the qualitative approach, which is the more appropriate approach for our chosen philosophical standpoint.

3.5 Research Design
The research design concerns the collection and analysis of data needed for answering the chosen research question(s) (Bryman & Bell, 2015, p. 49; Saunders et al., 2012, p. 159). The choice of research design is influenced by the previously chosen philosophical approach, research approach and research strategy (Saunders et al., 2012, p. 158). Bryman & Bell (2015, p. 53) has more specifically identified five prominent research designs. These include experimental, cross-sectional or social survey, longitudinal, case study and comparative design. The experimental design, the cross-sectional or social survey design and the longitudinal design tends to be quantitative (Creswell, 2014, p. 12). Experimental design is rare in business and management research, but its findings are seen as being trustworthy and typically standing the test of time (Bryman & Bell, 2015, p. 53). In classic experimental design, there is one experimental group that receives the treatment and one control group that does not receive the treatment for which the experimental group is compared against (Bryman & Bell, 2015, p. 54). The purpose of the experimental design is to determine the treatment that causes an outcome (Creswell, 2014, p. 13). In cross-sectional or social survey designs, data is collected with questionnaires and structured interviews (Bryman & Bell, 2015, p. 61; Creswell, 2014, p. 13). The data collection is done at a single point in time and on more than one case, and then analyzed so to find patterns and relationships between variables (Bryman & Bell, 2015, p. 62). The longitudinal design differs from the cross-sectional or social survey design mainly by the period of time for which the data collection occurs, which is on more than once occasion from the same sample (Bryman & Bell, 2015, p. 66; Creswell, 2014, p. 13). Since we aim to conduct a qualitative study, neither experimental design, cross-sectional or social survey design nor longitudinal design is a fitting research design for our study.

On the other hand, in the case study design the researcher conducts an in-depth analysis of a case - which could be an organization, location, person or event (Bryman & Bell, 2015, p. 67; Creswell, 2014, p. 14) - using one or more methods (Thomas, 2011, p. 513). Comparative design uses similar methods on two or more contrasting cases in order to identify similarities and differences (Bryman & Bell, 2015, p. 72; Ragin, 1994, p. 105). The comparative design can be used in both quantitative (most common form is cross-cultural or cross-national research) and qualitative research. When comparative design is used in qualitative research, it tends to take the form of a multiple-case study (Bryman & Bell, 2015, p. 74). Multiple case studies are based on rich descriptions typically generated using several data sources (Eisenhardt & Graebner, 2007, p. 25). By having more than one case, the importance of the singular case itself is lesser and instead the focus of the study lies on the comparison between the cases at hand (Thomas, 2011, p. 517). According to Ragin (2014, p. 35), by using case-oriented strategies while conducting a comparative study, the researcher aims to understand the cases studied. Moreover, as discussed by Welch et al. (2011, p. 745) the outcome of interpretive case studies is to understand the subjective experiences of the interviewee. This aligns with our wish to gain a greater understanding of the chosen R&D clusters. We will thus conduct a multiple case study.
Research can be classified in three different research purposes which are inherently connected to the type of research question: (1) exploratory studies, (2) descriptive studies and, (3) explanatory studies (Saunders et al., 2012, p. 170). An exploratory study is valuable if the researcher wants to ‘explore’ what is happening and gain insights of a certain topic (Saunders et al., 2012, p. 171). A descriptive study, on the other hand, aim to get “an accurate profile of events, persons or situations”. Lastly, explanatory studies aim to “explain the relationship between variables”. Our research question is an open ‘what’-question, where we want to understand what is happening. Therefore, we will conduct an exploratory study. Consequently, we are able to be more adaptable to change during our research (Saunders et al., 2012, p. 171). Furthermore, exploratory studies are recommended if the nature of the problem is uncertain, and since we wish to understand the differences and similarities between different R&D clusters, which for us so far is unknown, we argue for the use of an exploratory study.

In the previous section, we established our aim of conducting a qualitative research study. This gives ground for arguing that the case study design - along with the comparative design - most align with our philosophical approach, research approach and research strategy. The purpose of our study is to show the usefulness of integrating IB and EG, for in turn highlighting that there are regional variations between R&D clusters in India, and that those differences are important to understand in regards to the locational choice of research and development investments respectively. Hence, we consider the most suitable out of the case study design and the comparative design to be the latter in terms of a comparative multiple-case study. By looking at different R&D clusters and comparing them to each other, we will thus be able to reach an understanding of the differences and similarities between said clusters. While we will not argue that internationalization theories or location theories are new areas, we argue for the need to study emerging markets such as India on a sub-national level, whilst also considering the inherent difference between research and development, as well as considering relevant location characteristics highlighted by IB and EG. In short, a comparative multiple case study that is exploratory will be conducted.

**Comparative Multiple Case Study**

Comparative studies examine both similarities and differences amongst a selected number of cases (Ragin, 1994, p. 106; Ragin, 2014, p. 6). This is done for the purpose coming to terms with the diversity amongst a set of cases (Ragin, 1994, p. 107). Which is the most common use of comparative studies. Since this study aims to address regional variations, we will follow this common use and conduct a comparative research on diversity. By identifying similarities and differences, we will thus highlight if the clusters in matter are diverse. This will more specifically be done by looking at how the different interviewees perceive each cluster. By fist looking at similarities in terms of how the Gurgaon cluster is perceived, and then similarities in terms of how the Bangalore cluster is perceived, we can in turn make a comparison of the two clusters. Comparing the clusters in matter will reveal similarities and differences in accordance with our research question. These similarities and differences will in turn allow us to highlight their diversity in accordance with the purposes of this research study. Similar to our arguments regarding the presence of regional variations within India and other emerging markets, Ragin (1994, pp. 108-109) explains that a common conclusion from comparative research is that cases assumed of uniformity are realized to be different in one or several ways (Ragin, 1994, pp. 108-109).

Comparative research studies can more specifically include everything from a few cases to over fifty cases (Ragin, 1994, p. 105). Ragin (1994, p. 105) does however explain that the more cases examined, the more difficult it is to familiarize oneself with each individual case. Related to
this, it is also explained that gaining knowledge of each individual case is deemed an important
goal of comparative research, unrelated from other goals, since the comparative researcher look
at the different aspects of each case before later evaluating them against each other (Ragin,
1994, p. 105; Ragin, 2014, p. 6). In regards to this study, we will focus on only two clusters as
have already been indicated. Although this is a lower amount than what most comparative
researchers have, it will in accordance with the importance of gaining good insight allow us to
gain greater familiarity with each cluster during the limited time available to us. We will look
at how each cluster currently looks like, but also consider their different historical evo-
olutions for gaining a better understanding of them. This is a common approach by comparative
researchers, and does not have to be limited to historical aspects that are directly related to the
identified location characteristics that will be examined (Ragin, 2014, p. 6).

Furthermore, the usefulness of a comparative research for our study is supported by how Ragin
(1994, p. 108) explains that it is a suitable method for addressing three different type of goals:
(1) exploring diversity, (2) interpreting cultural or historical significance, and (3) advancing
theory. In regards to exploring diversity, this is one of the main purposes of this study. We aim
to highlight that regional variations exists in India, and that those are important to consider for
the location of MNE’s R&D investments. In regards to interpreting cultural or historical
significance, Ragin (1994, p. 110) explains that researchers tend to have a general idea of a
larger category of cases during the initial stages of a study, and that this larger category is
delimited by an interpretation of a “historically or culturally significant phenomena” (Ragin,
1994, p. 110). In our case, our initial category was ‘emerging markets receiving significant
amounts of foreign R&D investments’. From this, two clusters have eventually been chosen.
We argue that our broader initial category is historically significant, since the flow of significant
amount of foreign R&D investments into emerging markets is a relatively new phenomenon.
In regards to advancing theory, Ragin (1994, p. 111) explains that comparative research works
well for advancing theory due to “its use of flexible frames, its explicit focus on the causes of
diversity, and its emphasis on the systematic analysis of similarities and differences in the effort
to specify how diversity is patterned” (Ragin, 1994, p. 111). Although the essential goal of this
study does not involve creating and testing any new theories, this paper still contributes to the
advancing of theories by building a theoretical framework where IB and EG insights are
integrated. We have also conducted a systematic analysis of specific locational aspects that are
cause for diversity between the clusters studied, which further is in accordance with Ragin
(1994, p. 111) last point about advancing theory.

What is lastly worth mentioning is that although we use the logic, structure and the goals of
comparative research, what we are really doing is a comparative multiple case study, i.e. we
are conducting comparative research of two sets of case studies. This is largely due to our
limited number of cases and time.

3.6 Qualitative data collection
In order to answer the research questions, researchers need to collect data. Data collecting can
be done in two ways, either primary data or secondary data (Saunders, et al., 2012, p. 304).
Primary data tends to be new data collected for that specific study, whereas secondary data is
data collected for other purposes.

We will mainly use primary data gathered through interviews. We are conducting an
exploratory study and our objective with this study is to compare R&D clusters, which we more
specifically conduct by interviewing employees from one company that works in two different
R&D clusters in India. That way our interviewees will have the same company-context, but still
different experiences due to the R&D cluster they work in. Meaning, by using primary data we will be able to collect data that is construed for our research question.

However, since we are exploring these two R&D clusters from the perspective of employees from a western MNE, we do not simply want to rely on their experiences to fully understand these clusters. Thus, we will apply triangulation by using different data sources in order to validate our findings (Creswell, 2014, p. 201). We will do this by collecting secondary data of our two chosen R&D clusters.

3.6.1 Sampling

Our study is a qualitative, exploratory, comparative case study. Therefore, we have chosen a non-probability sampling, since the majority of the techniques have subjective elements within them (Saunders et al., 2012, p. 281). Non-probability sampling is one out of two types, with the second type being probability sampling (Saunders et al., 2012, p. 262). Probability sampling is often associated with quantitative research, and applies is “…the chance, or probability, of each case being selected from the population is known and is usually equal for all cases” (Saunders et al., 2012, p. 261). Whereas non-probability sampling is used when “…the probability of each case being selected from the total population is not known” (Saunders et al., 2012, p. 262), therefore not making it possible to make the same assumptions as with probability sampling. Since we are unable to make statistical generalizations of the whole population, the non-probability sampling is more suitable.

There are a variety of sample techniques under the non-probability sample method, such as quota, purposive, snowball, self-selection and convenience (Saunders et al., 2012, p. 284). We will use the snowball sampling technique for our study, since this sampling technique is used when it is difficult to identify potential participants (Saunders et al., 2012, p. 289). When doing a snowball sampling, the researcher first make contact with one or two possible participants, by which the researcher is referred further to other possible participants. This is repeated until the sample is of a satisfying size. However, Saunders et al. (2012, p. 289) warn about the problem with bias that easily arise when using the snowball technique, meaning those who refer the researcher to the next participant has a tendency to refer to similar thinking individuals. When conducting a multiple-case study theoretical sampling is preferred (Eisenhardt, 1989, p. 537).

As we are comparing clusters from the perspective of a western MNEs, the criteria for our sample is the following:

1. MNEs
2. A European company
3. R&D investments in a R&D cluster in India

Since we aim to understand the similarities and differences between two R&D city clusters mainly based on the perceptions of employees, interviewing employees from the same company would give us a fairer view of each cluster for us to compare. We wanted all participants to be from the same company so that we can control for both company and industry variations as far as possible. As argued for in 1.7 Delimitation, industry and company variations can namely otherwise impact our ability to find patterns of differences and similarities that are rooted in locational variations, which in turn can potentially hinder our ability to answer the research question unless a relatively larger sample size is used. Given the challenges of finding enough firms from the same industry, whilst they simultaneously must have offices in the same set of clusters and being willing to participate in this study, the sample of this study has been limited to employees from a single firm to control for the impact of company and industry contextual
differences as far as possible without having to have a relatively larger sample. The focus on a single firm can furthermore be related to the research question and research purpose of this study in terms of how clusters are defined. As the definition of cluster is narrowed down to only include such type of regions that take the form of ‘cities’, the difficulty of finding a relatively larger sample of firms that have relevant offices in the same set of clusters, is further enhanced.

To find a sample company, we started searching for European MNEs with R&D activities in India, at the start with a focus on Swedish, German and French companies found through the 2017 EU R&D Survey by the European Commission, as well as reports from Business Sweden. From the first set of contacted companies, we did not receive any positive responses. However, our first respondent we gained through the university. We consequently tried to find other participants from that respondent’s company, by for instance asking the first respondent if he knew anyone else that would be interested in participating. As this was not successful, search for respondents continued by looking up possible company contact information and emailing different people of interest. We contacted people from the same company as the first respondent, as well as people from other relevant companies just in case we would not find enough participants from the first company. The process of emailing possible participants was however not successful, as we were mainly not given replies. In rare cases, we were asked for additional information (e.g. specifications of the profile of the interviewees that we were looking for), and in other cases we were simply referred to others. However, even in both these cases, we soon ended up not receiving more replies from them. Eventually, a personal contact within the same company that the first respondent is working in helped us to secure more interviewees. The person in matter namely referred us to a person that in turn was able to provide us with four interviewees in accordance with the snowball sampling technique. Continuing with the snowball sampling technique, we asked the interviewees if they knew more relevant people that may be interested in participating whilst emphasizing that we were mainly looking for someone situated in Bangalore. This resulted in finding one more respondent within this cluster.

Due to our restrictive criteria, we had great difficulty finding participants, which delayed our study as a result. It also resulted in a smaller sample than we had aspired to. Luckily, we managed to at least find participants all from the same MNE whilst being in two different R&D clusters in India.

3.6.2 Semi-Structured Interview
In order to obtain the necessary data to answer our research question, we have chosen the method of semi-structured interviews. Semi-structured interview follows an interview guide, where fairly specific topics is to be covered during the interview, but also allows the interviewee to decide how to reply and speak more freely (Bryman & Bell, 2015, p. 481). The questions from the interview guide will cover the topics, however, this does not imply that all questions will be asked or be asked in order. There is also the possibility that during the interview, new questions might arise. This method works well, since our topic needs to be focused, but to also get an understanding of the subject’s experience with the phenomenon we want to study.

We divided up the interview guide in the following themes (See Appendix 3: Interview Guide):
Introduction

Questions about the respondent

Questions based on the theoretical framework

Research vs. development

Factor conditions

Demand conditions

Industry conditions

Global vs. local networks

Firm rivalry conditions

Governments

Wrap up questions

The introduction of the interview and the questions about the respondent is to be fairly similar in all cases. There we present the purpose of our study, talk about anonymity of the respondent and the company, ask what position the respondent have in the company, how long they have worked in the cluster and what type of R&D activity they conduct.

The following topics are less structured, where we aim for the respondent to be comfortable with talking about their experiences and knowledge about the cluster. As Saunders et al. (2012, p. 375) mentions about semi-structured interviews, some questions will be asked out-of-order, others will be omitted completely, depending on what the respondent answers with. The final wrap-up questions aim to summarize the interview, and to make sure we covered the important themes.

Preferably, we would have wanted to conduct face-to-face interviews with our respondents. However, this was simply not possible due to financial and time restrictions. Majority of our respondents was located in India during the time of the interviews. This meant we had to rely on Skype Business and Skype calls. We used the video function with neither Skype Business nor Skype, meaning both of them worked as a regular phone call.

3.6.3 Secondary Data

Secondary data is data that is external from the study at hand (Eriksson & Kovalainen, 2008, p. 77). It furthermore includes both raw data and published summaries (Saunders et al., 2012, p. 304). There are different types of secondary data: (1) documentary data, (2) survey-based data, and (3) data provided from multiple sources (Saunders et al., 2012, p. 307). We will use documentary data as secondary data in our study.

Documentary data is often used as a complement to primary data in research (Saunders et al., 2012, p. 308). This can be textual data such as reports, newspapers, government consensus of population, labor market trends, European Union publications, books and journals, or visual data such as video recordings (Eriksson & Kovalainen, 2008, p. 78; Saunders et al., 2012, p. 308). Due to the small sample size and our lack of previous knowledge about India and the specific clusters studied, we have decided to complement empirical data with the collection of secondary sources. By collecting secondary sources, a greater understanding of the clusters and their contexts can be gained. This can help provide additional support to the empirical findings, but it can also be useful in terms of helping us make better judgements of the gathered empirical data as part of the analysis process, as well as for asking more fruitful questions during the
semi-structured interviews. Gaining a better understanding of what the interviewees are stating and referring to with the help of secondary sources can especially be valuable given that we do not have any previous knowledge about the specific clusters that will be studied. Even our previous knowledge about India is very limited. Although this can be beneficial in terms of making us less biased, we argue that the advantages of being able to strengthen the results and better understand how the regions are different/similar in accordance with the research question and research purpose at hand, are greater than the possible disadvantage of being biased. In turn, the research question can better be answered so that the study’s purposes can be fulfilled. The secondary data will be collected from governmental websites, international agencies, journals and factbooks. To then be used in our results chapter to give further depth to Gurgaon and Bangalore as clusters.

3.7 Data Analysis
As stated in previous section (3.4.1) we have chosen to conduct a comparative multiple case study using the structure of analysis provided by Ragin (1994, p. 115). Meaning, we have chosen a specified phenomenon, and will study patterns of similarities and differences using an analytic frame (Ragin, 1994, p. 112). Furthermore, our select analytic frame for which we base our comparison on, is our theoretic framework (2.4) that shows different factors on which the attractiveness of a cluster for R&D investment depends on. When conducting comparative research, the researcher study configurations, which “a specific combination of attributes that is common to a number of cases” (Ragin, 1994, p. 115). In our study, the configurations are the different features from our theoretical framework, i.e. factor conditions, demand conditions, industry conditions, firm conditions, policy conditions, network conditions and exploration versus exploitation associated with emerging markets receiving significant amounts of foreign R&D investments.

The empirical results, and in turn our analysis, is as previously mentioned based on data gathered through interviews of employees that work within the same MNE. In our data collecting process, we intend to collect as much data as we can of our interviewees perceptions and experiences of the two clusters Gurgaon and Bangalore. As mentioned in the earlier section about qualitative data collection, we used semi-structured interviews in order to allow our interviewees to answer freely from their own experiences while still keeping to our specific themes, i.e. factor conditions, demands conditions, industry conditions, firm conditions, policy conditions, network conditions, and exploitation and exploration. Typical for qualitative research is a large amount of rich and dense data, of which the researchers have to sort through (Creswell, 2014, p. 195). In order to grasp all details from our interviews, they were all recorded and transcribed. To make our data understandable while presenting our data, we grouped empirical data under the previous mentioned themes. At the end of each theme in the results chapter, we summarized our gathered data in a table, and with our judgement of the empirical placed them under low, medium or high in regards to how much of each theme the two different clusters possessed.

The sorting and analyzing of the empirical findings have been done on an individual level before providing an overall view of how the clusters look like relative to each other. This has been done for the purpose of increasing transparency. By clearly showing how we have interpreted the gathered data and clearly shown the strength of the results, we have aimed to increase the transparency of this paper so that readers can understand to what degree this paper has been able to answer the research question and fulfill its purpose, so that findings in turn can be used accordingly. The reader can clearly see how the data gathered varies, and what patterns have been found. Essentially, the results of this study are based on the perception of the
interviewees in accordance with a qualitative study, so by clearly showing how we have identified patterns and made judgements about how and to what degree the clusters are believed to be different or similar to each other, transparency can be increased. This is especially considered important to be achieved by showing an analysis of the empirical findings on an individual level, given the small sample size of this study and possible weaknesses that comes from that. To strengthen the understanding of the data, secondary sources have nevertheless also been used for reasons that have been described more fully in previous sections (see 3.6.3). The main aim of the tables is nevertheless not to show how the interviewees’ perceptions vary, but it is rather to find patterns in the gathered data through which we can identify how the clusters are similar and/or different. For this reason, the perceptions of the individual interviewees have in turn been looked at from a more holistic perspective where we address how the clusters are overall different/similar relative to each other.

As part of the data analysis, we have chosen to grade the different locational attributes based on low, medium and high for mainly three reasons. First, we have chosen grading terms that focuses on ‘the degree’ of each attribute, since the theoretical framework emphasizes the presence of different attributes (e.g. the cost of human capital), rather than the ‘quality’ (e.g. the type of value one gets for the given cost of human capital). Second, since we are comparing two city clusters by studying how they are different/similar, we are interested in understanding their locational attributes relative to each other. And third, since we are addressing this from a western perspective, we want to highlight that although e.g. the cost of human capital may for instance be relatively high in Bangalore, this does not mean that it is actually high when considering it from a western perspective. It may still be low when compared to cost of capital in the company’s home country. By using three levels of grade, we can thus indicate that the cost of human capital is still on the lower end, even if it may otherwise be considered relatively high when only considering the two clusters relative to each other.

After presenting the empirical data and identifying their similarities and differences based on the insights and resulting perceptions of the interviewees with support from secondary sources, an analysis and discussion about the identified differences and similarities will be provided based on findings presented in a table such as the one below (see table 2). As can be seen, the table is organized based on the different locational attributes that are of interest, and based on the overall grading of the different attributes.

Table 2: Model table for analysis

<table>
<thead>
<tr>
<th>Factor Conditions</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of Human Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of Universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophistication of Demand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry Conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supporting Industries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Related Industries</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Since our analysis and interpretation of data is heavily reliant on judgment, it is important to take the quality criteria and ethical considerations into account. To ensure the quality of our findings, we implement the use of triangulation. When applying triangulation, the researcher uses several perspectives in order to clarify their results (Eriksson & Kovalainen, 2008, p. 292). For our analysis, we use triangulation of data, i.e. the use of multiple sources of empirical data, meaning we complement our primary data with secondary data where we find the primary data to be lacking, thereby aiming to confirm the insights gained from the interviewees. By the use of triangulation, we attempt to strengthen our empirical findings, and thus our conclusion of the research. We further use judgment to summarize each feature in tables in the results chapter, which are then used in our table for comparison in the analysis and discussion chapter. We do this in order to condense our results and make the similarities and differences easier to compare.

3.8 Quality Criteria

In general, quality criteria for qualitative research differs from the quality criteria for quantitative research (Eriksson & Kovalainen, 2008, p. 294; Guba, 1981, p. 80; Guba & Lincoln, 1982, p. 246). For qualitative research validity and reliability, i.e. the classical evaluation criteria, is substituted with ‘trustworthiness’ (Creswell, 2014, p. 201; Eriksson & Kovalainen, 2008, p. 294). The ‘trustworthiness’ criteria as a quality estimate is especially of importance in constructivists research, which is our chosen ontological standpoint (Eriksson & Kovalainen, 2008, p. 294). Qualitative validity refers to the need of the researcher to prove the accuracy of the findings by using certain procedures, whereas qualitative reliability refers to the use of a consistent approach, that has been used by various researchers across different projects (Creswell, 2014, p. 201; Eriksson & Kovalainen, 2008, p. 294). Furthermore, qualitative validity can be divided into credibility and transferability, while qualitative reliability can be divided into dependability and conformability (Eriksson & Kovalainen, 2008, p. 294; Guba, 1982, p. 80; Guba & Lincoln, 1982, p. 246).

Credibility

Credibility, also regarded as internal validity, is concerned with the question of how believable the findings and analysis are (Guba, 1981, p. 79; Guba & Lincoln, 1982, p. 246). This is especially important in qualitative research, since there can be multiple accounts of one single aspect of social reality (Bryman & Bell, 2015, p. 401). Credibility involves both for the researcher to prove to what level the research falls in line with recognized research methods in
the field of study, and to have the respondents validate the findings (Bryman & Bell, 2015, p. 401).

A method of testing the credibility of the research, is to collect data from various sources (Guba & Lincoln, 1982, p. 80). To ensure the credibility of our study, we applied triangulation techniques, as suggested by Creswell (2014, p. 201), by using several empirical data sources when collecting data to analyze. Primary data in form of interviews, and secondary sources, such as articles, books and reports from various governments and organizations. To further ensure credibility, “member-checking” is recommended, which entail taking the final report (or themes or specific descriptions) back to the participants (Creswell, 2014, p. 201).

**Transferability**

Transferability, also regarded as external validity, refers to responsibility of researchers to connect their research and to other research, meaning to show that there is some sort of similarities between their research and research in other contexts (Eriksson & Kovalainen, 2008, p. 294). A qualitative study, such as ours, tends to involve small groups of respondents and involve “contextual uniqueness” (Bryman & Bell, 2015, p. 402). Furthermore, due to the nature of qualitative research, case studies in particular, researcher cannot use generalizability and the assumption that the results are free of context (Guba & Lincoln, 1982, p. 247). To compensate the lack of generalizability, Guba & Lincoln (1982) encourages qualitative researcher to use ‘thick descriptions’, in order to judge to what degree the results can be transferred to another context. With rich and thick descriptions, the reader should be transported to the setting described and feel as if they are part of the experience (Creswell, 2014, p. 202).

Therefore, we do not intend to generalize our findings, but to increase the transferability of our study we will do the following. We use multiple interviews, as well as multiple sources of secondary for our empirical results, and describe our process in how we gathered the data and our use of triangulation, in an attempt to give our results and analysis a richer feeling. To weigh up our small sample of interviews we made an effort to collect secondary sources, thus giving a clearer picture of the two clusters than would have been possible with just our interviews.

**Dependability**

Dependability refers to the stability of the collected data (Guba & Lincoln, 1982, p. 247) and the researchers responsibility to inform the reader that the research process “has been logical, traceable and documented” (Eriksson & Kovalainen, 2008, p. 294). A way to ensure the dependability of a case study, is to keep record of as many steps of the process of the study, allowing the reader to easily follow the chosen method (Creswell, 2014, p. 203). To ensure the dependability of our study, we have tried to be as transparent as possible with the process of our research. In order not to misinterpret our respondents, we tried to keep many of the quotes in the results chapter. Moreover, we made an effort to describe the company for our study as well as we could while still keeping the company anonymous.

**Confirmability**

Due to the nature of qualitative research, with multiple social realities, researchers must be aware of the risk of their own bias (Guba, 1981, p. 81). Confirmability of data, refers to what degree the researcher can be shown to have acted in good faith, i.e. the researcher has not allowed to be ruled by their own bias, while conducting the research (Bryman & Bell, 2015, p. 403). Guba & Lincoln (1982, p. 248) suggest the use of triangulation and to uncover the philosophical perspective of the researchers to the reader, in order to ensure confirmability. As described earlier, we have used triangulation in order to strengthen our empirical findings.
the methods chapter, we present our philosophical perspective to the reader. Therefore, we have tried to create confirmable results. However, we are aware that completely objective results are not a possibility when conducting a qualitative study.

3.9 Ethical Considerations
When conducting research, ethical issues can arise at various stages of the process (Bryman & Bell, 2015, p. 129). Ethics in research is referring to “the standard behavior that guide your conduct in relation to the rights of those who become the subject of your work” (Saunders et al., 2012, p. 226). The process of collecting data on a business and management study is often likely to involve human participants (Saunders et al., 2012, p. 208). In order to avoid harm to the participants of the research, it is recommended to maintain the confidentiality of records and anonymity of the respondents (Bryman & Bell, 2015, p. 136). Given that our respondents have significant positions within the chosen company, keeping their identities anonymous was important for ensuring that they felt comfortable enough to talk freely. The company itself was also kept anonymous, as mainly the first interviewee highlighted that they had not gone through any internal process before participating in the study. For this reason, when talking about our respondents, they will be referred to as the respondents/interviewees or referred to a given code. Their interviews have therefore been presented and analyzed in an anonymous manner. In accordance with having an ethical research process and actions, we have also omitted certain excerpts from the interviews that the respondents have asked to be left out.

Furthermore, informed consent means the respondents in the study has been given as much information that is needed about the research and understand enough of the process, to be able to make an informed decision of whether to take part (Bryman & Bell, 2015, p. 139). In order to avoid deception, we provided the respondents with a description of our study when reaching out to them for the first time, along with a letter of recommendation. We also started each interview with explaining again the purpose of our study and what we have planned for the interview, ensured them of their anonymity, giving the respondent time to ask questions and asking if you were allowed to record the interview.

3.10 Practical limitations
Our first interview was held in Swedish, meaning this interview had to be translated to English for the transcription. By translating we might have missed or distorted the underlying meanings of what the respondent said. This is unfortunately hard to avoid, due to sayings having different meanings, and some words being difficult to translate properly.

Due to financial restrictions, as well as our restrictions regarding time, we were not able to have face-to-face interviews with our respondents given the geographical distance. Since we had to hold all our interviews over Skype Business or Skype, the sound quality did not always end up being the greatest. Especially in one of the interviews, this resulted in poor sound quality which inhibited us from hearing all that was said. We nevertheless did our best not to miss anything important. Also, to ensure that nothing was heard incorrectly, the transcribed material was double checked by both of us. This was done by going through the transcriptions whilst listening through the recordings. Along the way, blank parts that the other may not have been able to understand was added, and any potential differences in what we heard was discussed and corrected. To ensure that faulty interpretations was not made, any parts were the sound quality has been bad to the extent of requiring guessing or overly interpreting what is being said, has been excluded.
Related to the interviews, another practical limitation has been language barriers. English is not the interviewees, nor ours, first language. Consequently, there were occasional grammatical issues that easily could cause misinterpretation if taken out of context. Due to this, when necessary, longer citations have been used to provide a full picture of what message the interviewees are trying to deliver. We have thereby aimed to avoid faulty interpretations due to language barriers.
4 Empirical Research and Findings

Within this chapter, the empirical research and findings will be presented. An overview of the clusters will be presented based on secondary data. This will be followed by a sample overview and in turn the results from the interviews structured in alignment with the theoretical framework.

4.1 Cluster Overview

India has a number of different R&D clusters as previously touched upon, all which tend to be located around knowledge hubs where several universities and research centers are located (Patra, 2017, pp. 562-564). In the following subsections, we will take a closer look at two of these, namely the cities Bangalore and Gurgaon. Whilst the former is probably the most globally recognized city cluster in India, the latter is recognized as a younger but still a competitive cluster. Within the boundaries of our cluster definition and sampling criteria, these have been chosen due to our access to interviewees in these locations. They are nevertheless relevant city clusters to look at since they are both increasingly receiving significant amounts of R&D investments (Patra & Krishna, 2015, p. 19). To our knowledge, they have furthermore previously not been compared to each other. It can thus be interesting to have a look at their differences and similarities in accordance with the research question at hand.

4.1.1 Bangalore

Bangalore, also known as Bengaluru, is a city in the southern state of Karnataka (Adkin, 2009, pp. 16-17; Dittrich, 2007, p. 45). It is one of India’s fastest growing cities, and is today often referred to as India’s Silicon Valley (Sudhira et al., 2007, p. 379). Profiled as an IT hub, this city attracts people and companies from all around the world (Sudhira et al., 2007, p. 379). It is recognized as a hub for mainly software-related industries and is considered one of the largest clusters of its kind (Department of Industrial & Promotion, 2017, p. 3; Patra, 2017, 562; Rao & Balasubrahmanya, 2017, p. 98). Bangalore is however a city with range of different industries, including textile, automobile, biotechnology as well as trade and financing industries just to mention a few (Rao & Balasubrahmanya, 2017, p. 98; Sudhira et al., 2007, p. 381, 379). It is also “considered to be the scientific and engineering center of India in terms of research and training as well as manufacturing” (Rao & Balasubrahmanya, 2017, p. 98). Governmental initiatives, both on a national and state level, as well as FDIs are believed to have played an important role in the development of Bangalore. Its development is nevertheless believed to have started with a modern industrialization process triggered during the time India was colonized by the British (Adkin, 2009, p. 18; Basant, 2008, p. 67).

The British used Bangalore as a military base and established there a cantonment in 1802 (Adkin, 2009, p. 18; Sudhira et al., 2007, p. 381). They also latter created several companies for supporting their war efforts, including Hindustan Aeronautics Limited, the Radio and Electric Manufacturing Company and the Mysore Electrical Industries Limited (Basant, 2008, p. 67). These initial investments provided Bangalore with a greater potential to grow compared to other Indian regions, as it had helped establish an industrial workforce that they could exploit after gaining independence in 1947 (Adkin, 2009, p. 18; Basant, 2008, p. 67). They for instance benefited from IBMs decision to establish a subsidiary in Mumbai in 1951, as this foreign firm shortly thereafter began sourcing workforce from Bangalore (Karna et al., 2013, p. 217). The city furthermore benefited from its geographical location away from borders and coastlands. This impacted the federal government’s decision to locate sensitive industries (e.g. air force) as well as public institutions in Bangalore (Adkin, 2009, p. 64; Basant, 2008, p. 66; Collato, 2010,
p. 54). As explained by Basant (2008, p. 66) “this strategy promoted, in turn, the establishment of a number of universities, institutions, and colleges providing engineering and scientific training”. The government latter continued to invest in different industries, including the electronic industry which received much support from the state of Karnataka (Basant, 2008, p. 67; Collato, 2010, p. 54; Narayana, 2011, p. 1293).

Given the need for hardware in IT industries, the supported electronics industry along with Bangalore’s educated workforce would later steer Bangalore towards its current IT profile (Basant, 2008, p. 67; Collato, 2010, p. 54). More specifically, Anil et al. (2007, p. 607) explains that “the federal government in Delhi had targeted software as a growth area as early as the 1970s because of its high skill requirements, labor intensity, and foreign exchange earnings potential”. This led to the launch of the Software Export Scheme in 1972 (Anil et al., 2007, p. 607; Basant, 2008, p. 67). After being colonized by the United Kingdom, India had a generally closed and protected domestic market, but through this scheme, software exports were encouraged through e.g. reduced tariffs on hardware imports (Basant, 2008, p. 67; Mathur, 2005, p. 44). The state of Karnataka did furthermore establish the Karnataka State Electronics Development Corporation (KEONICS) in 1976. KEONICS did in turn support private enterprises through e.g. marketing efforts, the establishment of testing and development centers, and through operating personnel training centers (Basant, 2008, p. 69; Collato, 2010, p. 54). They also establish infrastructure and an electronics park which ended up housing the very first software technology park in India (Basant, 2008, p. 69; Collato, 2010, p. 54).

The development of Bangalore was nevertheless inhibited during the mid 1970s, when a policy change drove many foreign firms away (Athreye, 2005, p. 401; Basant, 2008, pp. 66-68). The Foreign Exchange Regulation Act was legislated during this time. It aimed to reduce foreign ownership of companies in India, and stated that the foreign firms had to reduce their equity ownership to 40% (Athreye, 2005, p. 401; Basant, 2008, pp. 66-68; Karna et al., 2013, p. 217). The biggest hit was the exit of IBM, who left behind a workforce of around 1200 people (Basant, 2008, pp. 68). Due to the lack of jobs, Basant (2008, p. 68) explains that some decided to leave India for pursuing an IT career abroad, whilst others started their own small businesses. The domestic demand for software development services was however limited, and global customers were often targeted instead (Basant, 2008, p. 68).

Another important event in the development of Bangalore was the liberalization of industrial, investment and economic policies in 1984 (Adkin, 2009, pp. 65-66; Athreye, 2005, p. 402; Anil, 2007, p. 610; Basant, 2008, pp. 68-69). It for instance led to a new computer policy that simplified import procedures, reduced tariffs on hardware for software developers and provided income tax exemptions (Athreye, 2005, p. 402). These liberalizations contributed to Texas Instrument’s decision to locate operations in Bangalore (Anil et al., 2007, p. 610; Collato, 2010, p. 54; Karna et al., 2013, p. 217; Patra, 2017, p. 558). They entered the city in 1984 and were soon followed by other foreign companies, such as Hewlett-Packard, Motorola and IBM (Collato, 2010, p. 54; Rao & Balasubrahmanya, 2017, p. 92). With the success of Texas Instruments, the benefits of such export oriented FDIs became clearer and further support was given to the computer industry by for instance creating Technology Parks (Anil et al., 2007, p. 607). Adkin (2009, p. 66) does however explain that India was during this time outshined by countries such as China who were developing in faster rate. The benefits of the policy changes did thereby not fully come into effect until the 1990s (Adkin, 2009, p. 66). India was further liberalized in the early 1990s. New economic policy were introduced and e.g. involved the devaluation and partial convertibility of the rupee, reduction in telecommunication charges for satellite links, export obligations on STPs removed, reduction of hardware import duties
(Athreye, 2005, p. 403; Basant, 2008, p. 72). This made it more profitable to invest in India. The government also allowed 100% FDI within the IT industry in 1999, which furthermore encouraged companies to create development centers in India and Bangalore (Basant, 2008, p. 72).

Throughout the development of Bangalore, the city has expanded and gained a larger population. Bangalore had a population size of 9,621,551 in 2011 according to the 2011 census report (Census Population, 2011a). The population size did in 2001 when the previous report was released add up to 6,537,124 people (Census Population, 2011a). That reveals a growth rate of 47.18%, and an annual growth rate of 4.72%. These figures are significantly impacted by Bangalore’s ability to attract people from mainly other areas within India (Narayana, 2011, p. 1286; Sudhira et al., 2007, pp. 383-384). It is largely considered an attractive location to live in due to its many work and study opportunities, but also due to the pleasant weather and the cosmopolitan culture which especially is considered an attractive characteristic amongst young professionals according to Anil et al., (2007, p. 610).

In regards to education, Bangalore houses several medical colleges at both undergraduate and graduate level according to Sudhira et al. (2007, p. 384). They also have many educational institutions that focus on engineering and science (Anil et al., 2007, p. 599; Sudhira et al., 2007, p. 384). In this regard, Anil et al. (2007, p. 599) explains that many highlight the presence of the research oriented graduate school Indian Institute of Science, as an important contributor to the city’s software capabilities. He also explains that many of the higher education institutes in Bangalore “are notable because such private engineering colleges were initially discouraged in other parts of the country and therefore attracted students from outside Karnataka who could not get admitted to their own state’s colleges” (Anil et al., 2007, p. 599). There are nevertheless both publicly funded educational institutions in the city, which has contributed to the presence of many top class scientific and engineering research/educational institutions in Bangalore (Anil et al., 2007, p. 610). Bangalore does also more specifically house the largest number of R&D centers in India according to the Micro Small and Medium Enterprises (MSME) Development Institute (n.d., p. 2). They also have many well established and prominent research centers such as the Indian Institute of Science (IISc), Indian Institute of Information Technology (IIM), the Defence Research and Development Organisation (DRDO), Tata Institute for Fundamental Research (TIFR) and many more (Sudhira et al., 2007, p. 384).

It is furthermore no surprise that this city is today mainly known for being an IT, or ICT, hub, given its development path. It is one of the largest technology hubs, and houses almost every major IT company from across the world, including MNEs such as Microsoft, Infosys, Tata, Whipro, Oracle, Dell and many more (Adkin, 2009, p. 66; MSME Development Institute, n.d., pp. 1; 9). Moreover, Karnataka is the preferred state for not only software and IT companies, but also pharma and healthcare companies, as well as telecom and allied companies (Wheebox, 2016, p. 37). Most, if not all, are situated in Special Economic Zones (SEZ) where various benefits such as tax exemptions can be gained. There is more specifically a variety of SEZ in Bangalore although most of them are dominated by companies related to the IT or ITES (i.e. Information Technology Enabled Services) sector (CSEZ, 2018). Given the many MNEs that be found in Bangalore, and the many domestic companies that set up affiliates abroad, Rao & Balasubrahmany, (2017, p. 99) explains that there is “a steady increase in both intra-cluster interactions within Bangalore and extra-cluster interactions between Bangalore and other clusters both in India and abroad”. The city does furthermore have many customers across the world that they interact with (Anil et al., 2007, p. 610). For the IT industry specifically, Anil
et al., (2007, p. 610) highlights how firms in Bangalore has mainly served sophisticated markets such as Europe and the Unites States.

4.1.2 Gurgaon
Gurgaon is a city in the state Haryana, located in northern India (Chatterji, 2013, p. 273; Jain et al., 2013, pp. 251; Narain, 2009, p. 501). It is officially known as Gurugram and commonly referred to as the ‘Millennium city’ of India (Chatterji, 2013, p. 274; Goldstein, 2016, p. 13; Mehtani, 2012, p. 6; Singh et al., 2010, p. 71). This is due to the exponential growth that this area experienced after the year 2000. Gurgaon has over the years evolved from being a rural town to a heterogeneous urban city. It has generally evolved through a ‘laissez fair’ approach, with a growth mainly driven by its geographical location and the real estate sector. The transformation of Gurgaon can nevertheless be derived back to the partition of India into Pakistan and Bangladesh (Chatterji, 2013, p. 274; Jain et al., 2013, p. 250; Mehtani, 2012, p. 6).

The partition of the former British India lead to a flood of migrants entering the National Capital Territory (NCT) of Delhi. This resulted in an unforeseen population growth that required management for ensuring balanced and harmonized development (Jain et al., 2013, p. 250). The NCT consequently adapted an expansion plan that involved the establishment of the National Capital Region (NCR). This region was established in 1985 and comprises the entire NCT of Delhi and several surrounding districts, including portions of Haryana, Uttar Pradesh and Rajasthan (Jain, 2013., p. 250; National Capital Region Planning Board, 2013, p. 1). The idea with NCR was to relieve some of the pressure on NCT by encouraging a spread of the growing population to the satellite towns of surrounding states, namely Ghaziabad-Loni, Faridabad-Ballabghar, Gurgaon, Bahadurgarh, Kundli and NOIDA (Jain, 2013., p. 250; Mookherjee & Geyer, 2011, pp. 91-92). Out of these, Gurgaon has grown the most. Between the years 2001 and 2011, Gurgaon experienced a population growth of 295%, followed by Ghaziabad-Loni (164%) and NOIDA (111%). The other cities reveal population growths below 40%, due to insufficient infrastructure (Jain, 2013., pp. 250-252). They have all generally had little governmental intervention and grown mainly due to their proximity to Delhi, but Gurgaon has nevertheless received most attention due to also being close to the Indira Gandhi International Airport (Goldstein, 2016, p. 13; Jain et al., 2011, p. 204; Jain, 2013., p. 250; Narain, 2009, p. 503).

The geographic location of Gurgaon first helped transform the area from a rural, agrarian town to an industrial and residential suburb of Delhi (Chatterji, 2013, pp. 280; 286; Mehtani, 2012, p. 9). It contributed to Maruti Suzuki’s decision to locate their automobile plant in Gurgaon (Mehtani, 2012, p. 55). This establishment in 1982, marks a turning point for the region’s economy (Chatterji, 2013, p. 281; Goldstein, 2016, p. 17; Mehtani, 2012, p. 51; Punia & Cheema, 2013, p. 3). Maruti Suzuki were followed by ancillary industries, as well as other automobile industries such as the leading motorcycle and scooter manufacturer Hero MotoCorp (Mehtani, 2012, p. 51; Punia & Cheema, 2013, p. 3). This generated jobs that attracted people to Gurgaon and spurred an increase in the region’s population growth (Mehtani, 2012, p. 12). These changes were soon accompanied by a growing real estate sector, with the privately founded company Delhi Land & Finance (DFL) in the lead (Goldstein, 2016, p. 17; Cowan, 2015, p. 64). DFL benefited from favorable building regulations and purchased large amounts of land from the region’s villagers in the 1980s (Cowan, 2015, p. 64; Goldstein, 2016, p. 17). Although the industrialization of the region marked the beginning of Gurgaon’s transformation, Goldstein (2016, p. 17) explains that developments were mainly "ensured after the DLF began assembling land for real estate".
The real estate sector dominated the region by mid 1990s (Cowan, 2015, p. 64), and further benefited from illegal construction issues in Delhi. Influences by Delhi’s restrictive planning processes, these issues where handled through stopping more or less all construction from the mid 1990s to 2007, which resulted in limited supply of housing and rising prices (Chatterji, 2013, p. 281). This drove more people towards choosing to live in the satellite cities, amongst which Gurgaon was considered an attractive choice (Chatterji, 2013, p. 281). Gurgaon’s growth was furthermore stimulated by DFL’s connections to GE Capital. It namely resulted in GE choosing to establish call centers in Gurgaon in one of DFL’s business parks. This was in 1997, and soon GE Capital were followed by companies such as American Express and IBM (Chatterji, 2013, p. 281; Mehtani, 2012, p. 54). Gurgaon subsequently evolved into becoming an IT and Business Process Outsourcing hub (BPO), and increasingly attracted both white collars and low income, migrant workers (Chatterji, 2013, p. 287; Goldstein, 2016, p. 18).

In regards to governance, Gurgaon has been under the political control of the Haryana state, with policy makers sitting in Chandigarh. Jain et al. (2011, p. 205) explains that the city has benefited from “smart policy initiatives of the Haryana government, i.e. reforms in tax laws, development of new expressway (transportation network)”. Similarly, Punia & Cheema (2013, p. 3) explain that “a number of policy initiatives announced by the Government of Haryana from time to time have provided an impetus for the rapid industrialization in the district”. There have moreover been several agencies involved in the urban development of the city, but generally Gurgaon has grown through a ‘laisses faire’ approach (Chatterji, 2013, p. 281). This has resulted in a city were “dynamism meets dysfunction” (Yardley, 2011 cited in Cowan, 2015, p. 63), causing many to call for a “more responsive local government with overarching power over the various public agencies responsible for integrated urban development” (Chatterji, 2013, p. 284). Many argue that “Gurgaon needs its own development authority. Planners sitting in Chandigarh cannot co-ordinate such a fast-growing area on a daily basis” (Chatterji, 2013, p. 281). A Municipal Corporation was consequently established in 2008, mainly lead by the commissioner Rajesh Khullar (Chatterji, 2013, p. 281; Cowan, 2015, p. 64). As the urban middle class viewed local institution as being corrupt and inefficient, he aimed to improve efficiency and increase transparency. The city’s first mayor was latter elected in 2011 (Goldstein, 2016, p. 19; Cowan, 2015, p. 64).

One of the major issues that resulted in the call for more local policy makers, was the poor infrastructure that resulted from the rapid and uncontrolled development. Chatterji (2013, p. 282) explains that Gurgaon suffers from poor water, sewage and drainage facilities, whilst going several hours without electricity is a normal occurrence. This is mainly an issue for villagers, as business parks and higher end residential areas rely on their own internal solutions to such problems (Chatterji, 2013, p. 283; Cowan, 2015, p. 71). This brings to light the fragmented landscape and social conditions of Gurgaon. Cowan (2015, p. 64) explains that “rather than consisting of any public, unitary whole, today’s Gurgaon is constitutive of a variety of fragmented and divided zones where residents live in deep yet distant codependence”. It is overall a heterogeneous yet segregated area, with people from all around India as well as from all around the globe, having different social classes and lifestyles (Goldstein, 2016, p. 18; Cowan, 2015, p. 66; Narain, 2009, p. 503). This is further supported by Goldstein (2016, p. 18) who explains that “the uncoordinated efforts of builders have created a built environment that scholars describe as a city of islands and of unconnected enclaves, in which governance is as divided as its discrete gated communities and urban villages”. He further explains that “the seemingly segregated city involves a web of entangled relationships between people who may not share the same rights or privileges, but depend on one another and maintain porous
boundaries” (Goldstein (2016, p. 18). More specifically, three distinct social spaces can be found in Gurgaon (Mehtani, 2012, p. 95). These include New Gurgaon, Old Gurgaon and Urban Villagers.

Although Gurgaon has many deficiencies when it comes to their infrastructure, several scholars indicate that their communication systems are good. Jain et al. (2011, p. 205) and Punia & Cheema (2013, p. 3) do for instance explain that the city is well connected through air, rail and road systems. The Gurgaon district does furthermore have a population size of 1,514,432 according to the latest Census report published in 2011 (Census Population, 2011b). 69.82% of these live in the urban areas whereas 31.18% of them live in rural areas. In regards to the population size, Cowan (2015, p. 64) does however state that there are around 800,000 - 900,000 additional inhabitants that have not been taken into account. These include “migrant industrial and manufacturing workforce” which are “living off-the-map in the city’s urban villages” (Cowan, 2015, p. 64). If one nevertheless considers the growth rate based on the Census Population (2011b) figures, Gurgaon reveals a growth rate of 73.97% between the years 2001 and 2011. The annual growth rate of the population between these years is furthermore 7.4%.

In regards to the presence of industries, Wheebox (2016) lists the state of Haryana under ‘Others & Diversified’. Punia & Cheema (2013, pp. 3-5) do furthermore provide an overview of the industrial clusters within the city. They reveal that Gurgaon has a broad range of industries including companies within the fields of rubber and plastic, leather, agro based and food processing, electricals, pharmaceuticals and to a less degree also biotechnology (Punia & Cheema, 2013, p. 5). They do nevertheless highlight three areas where growth and much potential can be seen. These include readymade garments, IT and IT enabled services, and the industrial sector where one for instance can exemplify with the automobile industry and telecommunication equipment (Punia & Cheema, 2013, p. 3). In regards to industries, Chatterji, 2013 (p. 274) explains that Gurgaon “has advanced over the past two decades to become a highly-sought-after destination for the information technology (IT)-enabled Business Process Outsourcing (BPO) sector”. This is further supported by Khomiakova (2007, p. 367) and Rao & Balasubrahmanya (2017, p. 99) who explain that the NCR area’s strengths lie in hardware and ITES-BPO, i.e. Information Technology Enabled Services and Business Process Outsourcing. Rao & Balasubrahmanya (2017, p. 99) furthermore explain that “though NCR is driven primarily by manufacturing industry, subsequent to 1991, IT industries started springing up both within New Delhi and outside, particularly in Gurgaon and NOIDA (Rao & Balasubrahmanya (2017, p. 99). Khomiakova (2007, pp. 367-368) attributes the faster growth of the IT sector in NCR to the rapid growth in Northern India. The growth of IT related industries may at least to some degree also be related to state level initiatives. The state of Haryana have according to Punia & Cheema (2013, pp. 3-5) established IT policies though which they have aimed “to transform Haryana into an IT driven economy” (Government of Haryana, 2000, p. 1).

4.2 Sample Overview

4.2.1 Company

As previously mentioned in section 3.5.1, all the interviewees for this thesis come from the same company. The company in matter will be anonymous, but what can be said is that it is a European Multinational Enterprise within the telecom sector. It is a company with a market presence in over 180 countries and that has around 120,000 employees worldwide per figures from 2017. Out of these, over 10,000 employees are situated in India. The company in matter
has largely been chosen due to its presence in the Indian market. It has also become evident that it has played an influential role in shaping developments of new technology within the telecom sector. Considering mainly these aspects, the company is likely to have experience and insights through which valuable contributions to this study can be provided. They have come to set up several R&D centers in different Indian regions, two of them being the clusters Bangalore and Gurgaon. From here on, we will refer to this company as ‘the company’.

4.2.2 Interviewees

Table 3 below provides an overview of the interview sample. In total, six people have been interviewed. Out of these, four (GRG-1, GRG-2, GRG-3 and GRG-4) are based in Gurgaon, one (BLR-2) is based in Bangalore and one (BLR-1) is based in the company’s home market although he works a lot towards the R&D facility in Bangalore. BLR-1 is as said not based in Bangalore but is nevertheless able to provide insight about this cluster based on insights gained through his interaction with people working there. As he is not aware of the Gurgaon cluster, the interview with him has been oriented towards learning about Bangalore. All the other interviewees are on the other hand aware of both clusters. Although the interviews to some degree has been focused on the cluster where they each are based, they have been able to provide insight about both. Given the small data sample, this has resulted in more insight and data. Almost all of the interviewees have furthermore confirmed that the are either directly or indirectly involved in the company’s R&D activities.

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>R&amp;D cluster</th>
<th>R&amp;D perspective</th>
<th>Y in cluster (w/ the company)</th>
<th>Length of interview</th>
<th>Language</th>
<th>Type of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLR-1</td>
<td>Bangalore</td>
<td>Exploitation</td>
<td>N/A</td>
<td>Approx. 60 minutes</td>
<td>Swedish</td>
<td>Skype Business</td>
</tr>
<tr>
<td>BLR-2</td>
<td>Bangalore</td>
<td>Exploitation</td>
<td>8 years</td>
<td>Approx. 45 minutes</td>
<td>English</td>
<td>Skype Business</td>
</tr>
<tr>
<td>GRG-1</td>
<td>Gurgaon</td>
<td>Exploration</td>
<td>9 years</td>
<td>Approx. 50 minutes</td>
<td>English</td>
<td>Skype Business</td>
</tr>
<tr>
<td>GRG-2</td>
<td>Gurgaon</td>
<td>Exploitation</td>
<td>13 years</td>
<td>Approx. 30 minutes</td>
<td>English</td>
<td>Skype</td>
</tr>
<tr>
<td>GRG-3</td>
<td>Gurgaon</td>
<td>Exploitation</td>
<td>2 years</td>
<td>Approx. 60 minutes</td>
<td>English</td>
<td>Skype</td>
</tr>
<tr>
<td>GRG-4</td>
<td>Gurgaon</td>
<td>Exploration</td>
<td>8 years</td>
<td>Approx. 45 minutes</td>
<td>English</td>
<td>Skype Business</td>
</tr>
</tbody>
</table>

BLR-1 works with sourcing for internal departments across the world. His work thereby involves finding suppliers for the purchase of products and services that are used for delivering customer projects. He has previously also worked with research within the company. Regarding the R&D facility in Bangalore, he explains that they mainly conduct development/exploitation activities.

BLR-2 works with global presales within the business area Networks. His team includes a headcount of 160 people spread across three locations including Bangalore, Gurgaon and Mexico. They are responsible for responding to customers’ requests for proposals (RFP) by creating techno commercial proposals across all technology areas which are then submitted to customers. BLR-2 explains that they are not involved in R&D activities at all, but his team in Gurgaon suggest otherwise. This could be explained by how the team in Gurgaon are situated...
in the same building as the company’s R&D team in Gurgaon. Such proximity could facilitate interaction amongst them. The presales and R&D teams in Bangalore are on the other hand not located in the same area within the city. BLR-2 is nevertheless able to provide useful insights about the two clusters.

GRG-1 also works with presales and is part of BLR-2’s team in Gurgaon. He explains that they have a close cooperation with the development team as they interact on a daily basis. More specifically he explains that they provide the development team with inputs in regards to what the customers are requesting. Their work is oriented towards customization and can thus be said to have an exploitation focus. A part of his team is furthermore GRG-3 who is a Senior Specialist. Similar to GRG-1, he explains that they are connected to the company’s R&D team in Bangalore and that they provide them with insights about what customers are requiring. He can thus also be considered to have an exploration perspective.

GRG-2 has a team that consists of 25 people who focus on the development of radio site products. GRG-4 is a part of his team. He is a lead developer and explains that the customize products through both the use of new and existing technologies. He subsequently argues that they are involved in both exploration and exploitation activities.

Overall, the interview sample is dominated by an exploration focus. They are nevertheless able to provide insights about the two clusters, which latter will be discussed from both an exploration and exploitation perspective respectively. Furthermore, all interviewees, except BLR-1, are Indians while BLR-1 is European.

4.3 Findings
This section is organized after the different attributes given in the theoretical framework. Under each attribute there will first be a presentation of the interview results, followed by support from secondary sources to further strengthen the findings and provide greater context. The use of the secondary sources is in this instance necessary due to the limited sample. These findings are then further graded and presented in a table. By looking at each individual interviewee’s perception of how the different significant locational attributes from a western R&D perspective differ between Gurgaon and Bangalore, a better understanding and higher transparency of the differences and similarities between the two clusters can be gained. As explained in 3.7 Data Analysis, to achieve this a grading system of low, medium and high have been used to compare the different attributes. The grading of each attribute is based on the interviews and the authors judgement supported by secondary sources.

4.3.1 Factor Conditions

Human Capital
In regards to the availability of talented human capital in Gurgaon, GRG-4 states: “It should be quite okay because Gurgaon is a part of the NCR and there is huge influx of people from the rest of the country towards Delhi for work, plus there is a huge population in Delhi also and other nearby states... People from those places they come over here for studies, work and other things so talent is not a challenge in [Gurgaon]”. Given this, GRG-4 states that finding talented human capital should not be a problem in Gurgaon. This is further supported by GRG-3, he focuses on the telecom industry and states that there is for his domain suitable staff available in Gurgaon. He further provides support by explaining that so far they have been able to fill most positions using people from within the Gurgaon or Delhi region. He states that one or two may be from outside the cluster, “but others only from Gurgaon or Delhi”.

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In regards to the level of talent GRG-4 further explains that prominent institutions can be found in Delhi. He also explains that Delhi is the capital city and that there is thereby a good ecosystem in both Gurgaon and Delhi through which people with relevant work experiences can be found. The availability of talented human capital in Gurgaon is furthermore supported by GRG-3. GRG-3 highlights the availability of engineering skills specifically similarly to GRG-1. GRG-3 states “It is a lot of engineering, definitely. It is a lot of engineering, and engineering is the defacto requirement when it comes to the telecom sector”, whilst GRG-1 emphasizes the many engineering students that yearly are graduating all around the country. The latter also highlights how the location of universities and colleges plays an important role. He states “I think both the location Bangalore and Gurgaon is well equipped with the fresh graduates, so it is not hard to find the fresh graduates”. He does however further explain how there is relatively more in Bangalore, at least partly due to this city’s geographic proximity to other regions such as Chennai and Tamil Nadu where many universities and colleges also can be found. He states: “Many colleges are nearabout Bangalore... so you get good amount of people there compared to Gurgaon”.

The relatively higher availability of human capital in Bangalore is further supported by GRG-2. He explains that from a development perspective, Gurgaon offers a good amount of human capital. In comparison to Bangalore, however, he states that Bangalore is relatively better than Gurgaon. He explains this whilst bringing light to the city’s many universities and the ecosystem which enables access to many experienced people. This is further supported by BLR-2. BLR-2 gives much praise to Bangalore for the large availability of talented and adaptable human capital that has a “great attitude towards work”. He states that “Bangalore scores high compared to Gurgaon” and further highlights the many prominent universities in and around the areas nearby Bangalore from which fresh graduates can be found. Although BLR-1 does not compare the availability of talented human capital in Gurgaon with Bangalore as he is not familiar with the former city, he confirms that the labor market in Bangalore is large. He for instance states “of course it’s a huge asset, there is a lot of people there”.

In regards to human capital, most of the respondents nevertheless explain that a large labor market does not necessarily make it easy to find suitable people. GRG-3 does for instance state that “it has not been easy, but what I feel is locating them would be further more difficult in a place like Bangalore”. In this regard, he highlights how Bangalore is very much dominated by IT companies and that finding people specializing in niche domains such as power and energy for instance, might therefore be more difficult in Bangalore compared to Gurgaon. It is nevertheless not an ‘impossible’ task according to him: “I wouldn’t say it is easy, it's not easy but in a given circle, you can still find people who specialize in niche domains”. BLR-1 also highlights challenges of finding suitable staff when speaking about Bangalore. He states that “I can’t say that it is easier to find the right people just because there is a lot of people, it rather becomes more complex...”. In this regard, he is however not sure if it is due to the local conditions or due to poor internal human resource functions. In regards to Gurgaon, GRG-1 suggest that it can to some degree be challenging to find people there as well. He states the following: “I think human capital wise, we have talented people but to find the talent for R&D activities is I would say tougher, because R&D requires some kind of analytical or higher qualification in terms of having good analytical skills I think. And somewhere education system is still... need to do much more. From that perspective, it is challenging in terms of finding good students, good fresh graduates for your R&D”. 

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Regardless of any potential challenges with finding suitable staff, GRG-2 suggest that finding talented personnel in either Gurgaon or Bangalore is not a problem because one can if necessary find people in other areas of the country since people are largely willing to move for jobs and study opportunities. He also explains that “the job situation is not like in [the company’s home market], where you can decide”, thereby suggesting that people across the country generally tend to follow jobs. This is further supported by GRG-3 who explains that finding staff from other regions is if necessary a possible solution. Similarly, BLR-2 explains that people in India are generally very willing to move to Bangalore as it is an attractive, cosmopolitan city with mild weather conditions.

Although one could discuss how easy or hard it is to find suitable people, there is overall considered to be a high availability of talented human capital in both Gurgaon and Bangalore, both in terms of newly graduates and experienced personnel. Finding staff either in and around the areas of Gurgaon and Bangalore is essentially not considered a problem for any of the interviewees. Especially considering how people in India generally are willing to move for job opportunities as indicated by the interviewees. The large availability of talent in both cities is reasonable given that India is generally known for their large resource base when it comes to human capital. It is often one of the main reasons for why many foreign MNEs place their investments and operations in India in the first place. As was mentioned by for example Manning et al. (2008, p. 41), India is seeing an upwards trend in terms of the number of science and engineering students that are yearly graduating, whilst many western countries on the contrary are experiencing a decline. Although both Gurgaon and Bangalore offer good amounts of human capital, some of the interviewees do however indicate that Bangalore nevertheless has a relatively larger pool of talented human capital. This is mainly highlighted by three of our respondents (GRG-1, GRG-2 and BLR-2) who in this regard speak about the many prominent universities and the generally large ecosystem that exist in Bangalore. The relative difference between Gurgaon and Bangalore in terms of the availability of talented human capital is more specifically shown in table 4 below.

| Table 4: Summary of human capital |
|-------------------------------|------------------|
|                               | Gurgaon | Bangalore |
| GRG-1                         | Medium   | High      |
| GRG-2                         | Medium   | High      |
| GRG-3                         | High     | Medium    |
| GRG-4                         | High     | N/A       |
| BLR-1                         | N/A      | High      |
| BLR-2                         | Medium   | High      |
| **Summary**                   | Medium   | High      |

**Cost of Human Capital**

GRG-3 reasons that the higher living costs in Bangalore results in higher wages compared to Gurgaon. He states: “I don't have exact figures, but what I can tell you as a ballpark is it's about, let's say, 1.5 times of Gurgaon in Bangalore. It's higher in Bangalore. For IT the figure may be much higher, but for telecom it's about 1.5 times of that of Gurgaon”. GRG-1 does, on the other hand, based on his gut feeling state that “Bangalore and Gurgaon comes... I think, fair about the same but still Gurgaon will be 5-10% higher than Bangalore”. He further explains why this is by stating: “I think Gurgaon offers higher salary wages compared to Bangalore because of demand and supply. You will find a lot of engineering students in Bangalore location whereas in North it is comparably challenging to find good people”. Although a different rational is used, BLR-2 also argues that the cost of human capital is slightly higher in Bangalore.
He states “cost of living in Bangalore is slightly on the lower side compared to Gurgaon, and hence the salaries are also on the lower side”. Similar to GRG-1, GRG-4 states that if anything Gurgaon might be slightly higher, but he believes that salaries are generally on the same level due to both Gurgaon and Bangalore being “huge class cities with equal costs as far as living costs”. The belief that there is not really a difference in human capital costs between Gurgaon and Bangalore is further supported by GRG-2.

Related to the cost of human capital, BLR-1 explains that there can be huge salary gaps depending on what position one holds. He explains that salary levels on higher levels of the pyramid previously mentioned may be comparable to those in the west, whereas wages for those further down may only be one twentieth part of what is received in the west. He continues by stating “...but then again, the wages of those in the bottom is a lot if you compare it with big parts of the Indian population”.

Especially given the decline of science and engineering students in the west, the cost of human capital with such skills is generally higher in the west compared to India - at least when considering people lower down the hierarchy of an organization as suggested by one of our respondents (BLR-1). The low cost is one of advantages of having R&D investments in India as highlighted by for instance Kumar (2001, p. 163). The relative difference between Bangalore and Gurgaon could thus be spoken about in terms of how low the cost of human capital is. In this regard, two of the respondents (GRG-3 and BLR-2) believe the cost of human capital is lower in Gurgaon, while one respondent (GRG-1) believes that it is lower in Bangalore. Two of the respondents (GRG-2 and GRG-4) furthermore consider it to be about the same in both Bangalore and Gurgaon. Overall, table 5 shows that there is not a significant difference between the two clusters. They can thus be considered relatively similar in terms or their cost of human capital.

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<th>Summary of cost of human capital</th>
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<td>Gurgaon</td>
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<td>GRG-1</td>
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<td>GRG-3</td>
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<td>BLR-1</td>
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<td>BLR-2</td>
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<td>Summary</td>
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Universities and Research Centers

In regards to the presence of universities and research centers in Gurgaon, GRG-3 states the following: “I wouldn't call them research centers, but universities, yes, a lot of them. And, in a neighboring state called Punjab, there's a whole lot of them. And in the last 15 years, there has been a lot of stress on engineering as education, and the schools of engineering. A lot of these privately held universities, and privately held engineering colleges have come up. We have a lot of potential for putting out a huge mass of engineers. So hence the reduced cost of skilled people, I mean... it's basically a part of the equation.”

The high availability of universities in Gurgaon is further supported by GRG-1. He states “As I see it, Gurgaon has lots of colleges and universities nearabout...so we have a good amount of young and talented workforce”. He also highlights how there are many universities and colleges in Bangalore and its nearby regions. In this regard, GRG-1 explains that “Bangalore
is very near to Chennai, Tamil Nadu, Karnataka. And as I see it there are many universities and colleges...engineering colleges are there”. Overall, he believed that there are more students in Bangalore than Gurgaon. BLR-2 confirms the high availability of universities in and around the area of Bangalore. He especially highlights Bangalore’s proximity to Tamil Nadu where he explains that many good institutions especially exist there. BLR-2 more specifically state: “because of... its proximity to Tamil Nadu which is one of the most progressive provinces in the country, and with the good education institutions, definitely Bangalore is far ahead compared to Gurgaon. There are top education institutions in South”. When asked about the availability of universities in Bangalore, GRG-4 explains that there are many universities in and around the areas of Gurgaon. He also confirms that there is however relatively more in Bangalore. He states: “Yes. Engineering wise, there will be more universities in Bangalore than Gurgaon. And not only more universities, I would suggest that it would be... more good quality universities for sure. And then proven universities since long. So the number of units would be more in Bangalore definitely”.

In regards to research centers specifically, GRG-1 is similarly to GRG-3 suggesting that there is a limited amount. He states “Research centers? Uhm... no, no. Not sure, might be some other organization, might be doing. But from my team perspective, my team don’t interact with any research organization. He does however latter explain that there are organizations that conduct research activities and that these are both publicly and privately funded. In regards to Bangalore, GRG-1 explains that some recent happenings include research investments being conducted by a software company as well as Israel: “[The software company] is one of the organization... I think they are going to set up big R&D center [in Bangalore] and, we have some development with other countries as well. Like Israel. Israel is also going to set up some center, R&D center in Bangalore”.

Overall, three of the respondents (GRG-1, GRG-3, GRG-4) believed the availability of universities to be good in Gurgaon, and three of the respondents (GRG-1, GRG-4 and BLR-2) believed it to be good in Bangalore. Relative to each other, most of them stated that they considered the availability of universities to be better in Bangalore compared to Gurgaon. There are also indication of them being ‘better’. The relatively greater presence of universities does makes sense given how Bangalore early on was targeted as a strategic location for placing sensitive activities such as defense and air force, which in turn early on promoted the establishment of science and engineering education in Bangalore (Basant, 2008, p. 66). The relative difference in regards to the presence of universities can be seen in table 6. When it comes to research centers, sufficient empirical data has however not been found. The respondents generally suggest that the presence of such institutions is limited in Gurgaon, but one can question this as more or less all seemed hesitant when asked about research centers. They consequently indicated that they were not sure about what it is. This has especially been made clear by how the last interviewee explicitly asked what was meant by ‘research center’. The limited knowledge and insight that the interviewees have in regards to research institutes is further revealed by how none of the interviewees indicate that they interact with such actors. Although secondary sources reveal that Bangalore houses the most R&D centers in the entire country which one can assume that Bangalore has relatively more than Gurgaon (MSME Development Institute, n.d., p. 2) through, the attribute ‘research center’ will hereon be disregarded. This is due to that it is difficult to say how relevant these centers are from a telecom perspective.
Table 6: Summary of universities

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<thead>
<tr>
<th></th>
<th>Gurgaon</th>
<th>Bangalore</th>
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<tbody>
<tr>
<td>GRG-1</td>
<td>Medium</td>
<td>High</td>
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<tr>
<td>GRG-2</td>
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<td>N/A</td>
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<tr>
<td>GRG-3</td>
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<td>GRG-4</td>
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<tr>
<td>BLR-1</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>BLR-2</td>
<td>Medium</td>
<td>High</td>
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<tr>
<td>Summary</td>
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4.3.2 Demand Conditions

All our respondents, both in Gurgaon and Bangalore, highlighted that they work primarily towards global customers. Consequently, when discussing the local market in Gurgaon, both GRG-1 and GRG-3 clarified this by saying that the company had two entities in the cluster. The first takes care of the local market requirements. More specifically, it supports the smaller offices that the company has in different regions across the country according to GRG-3. The second entity is the ‘global’ one. It works towards customers across the world. It is as part of this that the Gurgaon interviewees work for the company. While the global entity doesn’t do any local business, per say, GRG-2 means that some of their customers have business all over India, including Gurgaon. So, they still serve customers locally in Gurgaon. Moreover, GRG-4 adds that locally in Gurgaon, the company has one to three customers. He further states the following: “our primary customers have been telecom in the past, the main companies and the number one company in India which is in telecom [...] has their HQ in Gurgaon. And similarly there are other organizations also which are there in Gurgaon.”. He concludes by further stating that being near to the customers makes sense.

Continuing with the global customers, GRG-3 argued that their product development (R&D) is a part of the global entity. He explains that the regional offices across the country do not develop their own solutions. They only possible come with suggestions for improvements of products that are sold within that specific region, and does thus not partake in any of the global product developments. GRG-3 further explains that the global entity has customers in around 140 countries and describes how a day at the office can involve having phone calls and meetings with customers from a variety of regions across the world.

An important aspect for the job they do is to adapt and customize their offering for their customers, according to GRG-1. He explains that the requirement for the job is different from customer to customer. Sometimes the requirements from the customer is based on the latest technologies or the latest happening, and “...sometimes we don’t meet those requirements and we feed those kinds of market research inputs to our development units”. Additionally, GRG-3 explained that when the company gets involved with a global customer, the customer leaves an RFP to the company. GRG-3 ends with saying that RFP is “…a combination of both products and services”. GRG-1 continues with saying: “So these are the new happenings, new design requirements coming from the customers side, so they should think about these products or solutions“. Adding to this, GRG-3 means that “…what [they] are trying to do here is to include the new products that have been developed or that are under development in the RFP that are on-going”.

An example of how the requirements between customers may differ is given by GRG-3. He explains that “… some of the countries, they are creating utility power and they do not have
backup systems, they do not have the requirement for backup systems like a country in Europe would...”. When then a country in the developing world leave an RFP, the company tends to include more products. This is because, as GRG-3 states, “... others like the Middle East, or Asia, or other places, they have a strong requirement for backup”.

In Bangalore’s case, one reason the company set up its R&D facility there was according to BLR-1, because of demand from customers. BLR-1 works with the Service Delivery part of R&D in Bangalore and he explains that for them, the customer is very important when it comes to where they set up offices. He explains that although certain jobs can be done from far away, others may require one to be geographically close to customers. What the office in which BLR-1 works for in Bangalore does, is dealing with global delivery. This is similar to the global entity in Gurgaon. They get projects from all over the world, since as BLR-1 says, it is easier to build up competence in one place, rather than in several locations. He explains that this is especially the case for them because the company delivers rather complex products. He also explains that having competence gathered in few locations is an advantage from both a cost and efficiency perspective.

BLR-2, on the other hand, works for the pre-sales office in Bangalore. He explains that they deal with internal customers, i.e. other offices of the company across the world who in turn may or may not be the face of the company to the end customer. These end customers are primarily global customers, many of which are in Europe, Africa, Middle East, Latin America. As BLR-2 puts it: “Mine is a global team”, and for this reason he considers Bangalore to be the better location, in comparison with Gurgaon. However, he adds that if his team had focused on India specifically, then he would have considered situating the Bangalore team in Gurgaon as well.

Overall, although some customers can be found in both Bangalore and Gurgaon, all the interviewees highlight that they mainly work towards global customers. These customers originate in both developing and developed countries, and is largely kept in contact with indirectly through the company’s internal departments situated across the world. It can thus be said that the entities in both Gurgaon and Bangalore are – mainly through indirect contact - influenced by global customer’s nature of demand and to a much lesser degree by local customers. Although it is difficult to state whether the local customers in Bangalore and Gurgaon can be considered sophisticated or not based on the empirical data gathered, one can assume that the global customers do at least to a certain degree impose sophisticated demands. This is argued for since they for instance have customers in advanced regions such as Europe. This is a region that can be sophisticated as further supported by Anil et al., (2007, p. 610). It is further indicated that the nature of demand that the company is subject to can be considered sophisticated based on how mainly one of our respondents (GRG-1) explains that their customers sometimes come with requests that involves latest technologies etc., thereby pushing the company towards continuously improving and updating the offerings as suggested by Porter (1990a, p. 82). Both Gurgaon and Bangalore can overall be considered similar in terms of being influenced by relatively sophisticated demand conditions as more or less all the respondents highlight that they have global customers. Since they are focusing on global customers, the local market size and market growth can be considered to have less importance in this case. There is furthermore insufficient details in regards to how many of the few local customers are Indian and how many of them are simply foreign companies with offices based in the respective clusters.

In short, given that the interviewees are in agreement about serving mainly global customers, and that this can be translated into having some degree of sophisticate, one can argue that
Gurgaon and Bangalore are similar in terms of being subject to such nature of demand, i.e. relative to each other this attribute can be referred to as being on an average or “medium” level.

### 4.3.3 Industry Conditions

**Supporting Industries**

GRG-1 mentions that the office in Gurgaon focuses on the site area of telecom, and that most of their partners are from the cable industry and metal works. According to GRG-2, Gurgaon have a lot of their suppliers in Gurgaon although “you can find similar suppliers in Bangalore”. They do not make components and hardware themselves in Gurgaon. He explains that they more specifically use a lot of 3PP (third-party partner) developed products. He continues with mentioning that their main operator has their headquarter in Gurgaon, “so from that perspective our area is, I think I would say better in Gurgaon than Bangalore”. He further mentions that both their vendors have their headquarters in Gurgaon. GRG-3 echoes this thought to some degree by saying: “…you can have a R&D facility in Bangalore also, and you may find great support systems and [Original Equipment Manufacturers (OEMs)] there also”. He also states that “the larger faction of the resources that you find on a place is basically, you know aligned to one domain, and in Bangalore’s case it’s IT”. He also explains that the suppliers they use are highly competitive: “So, what we can source from them is far more cheaper, and has far less lead time than probably anywhere else. Other than China, obviously.”.

According to GRG-1, most of their partners have good establishments in Gurgaon, and in the NCR. He states that the company “...has a good amount of manufacturing companies located nearabout”. He continues with saying that these companies do manufacture in other parts of India as well, but they have distribution offices in Gurgaon. The company do mainly have supplier-buyer relationship with these manufacturing companies, but they do have certain partnership alliances as well. GRG-1 also explains that their supplier are recommended to them by their global sourcing organization: “So whenever we have to find any supplier, we go to our global sourcing team and we ask who are the preferred suppliers for particular products, for particular manufacturing. And based on our supplier group sourcing agreement, we decide which partner we have to choose. So its dealt with centrally and most of the suppliers are MNEs”.

Moreover, GRG-1 states that most of their suppliers are multinational. This is supported by GRG-3, who explain that in Gurgaon there are multiple companies available for their work much cheaper than it would be anywhere else, especially outside of India. For a telecom company, Gurgaon inhabits a lot of relevant manufacturers, which is suitable for the company’s product development. He continues to further support GRG-1, by clearly stating that he is talking about global companies. GRG-4 agrees with this statement, saying that around half of their suppliers are global suppliers, who are also based in Gurgaon. In Gurgaon, GRG-1 means they have “... a lot of support systems active”. Furthermore, he states that they have already enlisted many of the vendors and many of the OEMs into the company as a global company, meaning these vendors and OEMs have an ongoing relationship with the company. It is easier for a telecom company such as the company to have multiple vendors for a single product, and that “that kind of flexibility is greater in Gurgaon”.

Regarding the suppliers in Bangalore, BLR-1 argues that a lot of the larger companies that they use as suppliers are located in the city. This is further supported by BLR-2. He mentions that several of their suppliers have offices in Bangalore. Some even have manufacturing activities nearby, and at least one conducts R&D activities to his knowledge.
Overall, the interviewees indicate that the company has suppliers in both Gurgaon and Bangalore, as well as globally. There are also indications suggesting that the suppliers used can be considered to be amongst the more internationally competitive actors, providing their products and services in a good and timely manner. This is mainly highlighted by GRG-3, but also by how GRG-1 explains that their office in Gurgaon find suppliers through the company’s global sourcing organization. This entity suggests which the best suppliers are, based on international standards. One can assume that the entity in Bangalore find their suppliers in a similar manner, as BLR-1 is a part of this sourcing organization and how his interaction with the R&D entity in Bangalore is related to sourcing. In regards to the presence of suppliers in Bangalore and Gurgaon specifically, table 7 suggests that Gurgaon can be considered to have a slight advantage. Although two suggest that the presence of suppliers in Bangalore is ‘medium’ whilst two suggest that it is ‘high’, one could argue for the former as BLR-1 and BLR-2 has not considered this relative to Gurgaon. GRG-2 and GRG-3 do on the other hand suggest that suppliers can be found in both, but indicate that relative to each other, Gurgaon has an advantage.

Table 7: Summary of supporting industries

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<th>Gurgaon</th>
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<td>GRG-1</td>
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<td>Summary</td>
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* Although two suggest that the presence of suppliers in Bangalore is ‘medium’ whilst two suggest that it is ‘high’, one could argue for the former as BLR-1 and BLR-2 has not considered this relative to Gurgaon. GRG-2 and GRG-3 do on the other hand suggest that suppliers can be found in both, but indicate that relative to each other, Gurgaon has an advantage.

Related Industries

When it comes to presence of industries in Gurgaon, GRG-3 states the following: “Dominance is from electrical perspective, which is completely aligned to our domain, being from the ‘site-side’ in [our company]”. He further adds: “There are also a lot of automotive but they are not aligned to our products and portfolios”. According to GRG-1, the dominating industry is however IT and service industries like BPO. He proceeds by stating that he believed both Gurgaon and Bangalore can be considered IT hubs of India. In this regard, GRG-4 provides further insights as he states “I think in Gurgaon it would be telecom, manufacturing, locomotives, automobiles, and...supply and other institutes. IT has also started to come up lately, but definitely the extent of IT is more in Bangalore than Gurgaon”. BLR-2 have similar considerations, where he says that Gurgaon have IT, telecom and commercial automobiles industries. However, he believes “IT is stronger in Bangalore, compared to Gurgaon”. For telecom and automobiles, he considers Gurgaon to be stronger than Bangalore.

In regards to dominating industries in Gurgaon, GRG-2 explains that there is no single dominating industry in Gurgaon, whilst Bangalore on the other hand is clearly dominated by the software sector. He further clarifies that this does not mean that IT is not present in Gurgaon, but rather that it is relatively more of a dominating industry in Bangalore.
When speaking about Bangalore, GRG-3 states that “… the larger fraction of the resources that you find on a place is basically […] aligned to one domain, and in Bangalore’s case it’s IT. Because of the other IT giants there”. He proceeds by explaining that the reason why there is so much IT in Bangalore, is because the IT industry in this city was set up relatively early. In comparison to Gurgaon, he explains that the industry was established about 10 years earlier in Bangalore than in Gurgaon. He also mentions that the IT industry exists in Gurgaon as well but explains that it is present in a much more limited scale compared to Bangalore: “… it is on a very limited scale, I would put it like 1/5 of Bangalore. So, it’s quite less, it is there. [Many] have huge offices in Gurgaon, but they are very small in comparison to what they have in Bangalore”.

Similarly, to GRG-3, GRG-2 explains that Bangalore started establishing an IT industry early. He proceeds by explaining how Bangalore has the “ecosystem, infrastructure and companies well in place” and companies in Bangalore have “these software hubs, they have the semiconductor hubs, R&D… and all those ecosystems are very, very close together. So that’s making sense for them for choosing Bangalore over Gurgaon”.

The dominance of IT industry within Bangalore is further confirmed by GRG-3 and BLR-1. The latter explains that there are a broad range of industries, but he highlights that a lot of IT can be found in Bangalore. Moreover, BLR-2 strengthen the idea that IT is the dominating industry in Bangalore, and that the aeronautical, Indian space research organization and automobile industries are large in Bangalore as well. However, he adds: “Rather, I would slightly […] place Gurgaon up compared to Bangalore when it comes to automobiles”.

One of the reasons GRG-1 believes the company is situated in Gurgaon, is the ecosystem, “… the transport and other infrastructure is very nearabout, and other telecom giants, or telecom IT companies are in Gurgaon”. He continues with saying that the ecosystem permits all the players to be at one place, and sometimes they even share the same street. GRG-2 supports this by saying that they have competitors that have their headquarters in Gurgaon. This is further supported by GRG-3 who states that they have competitors in the cluster whilst explaining that there is competitive atmosphere in the city. According to GRG-4, Gurgaon is the “power corridor for the telecom world” although there is a little bit of a shift towards Mumbai. Some of their competitors have opened up headquarters in Mumbai, but he believes it to be a fair balance. He nevertheless highlights that it is a better ecosystem in Gurgaon in terms of supplier. He adds, “the whole ecosystem makes it easier in Gurgaon”. Similar to GRG-4, BLR-2 says: “From an India perspective, obviously Gurgaon and Mumbai are the two clusters with a very high intensity of the telecom business. Because Gurgaon is being close to Delhi, which is the political capital, which requires regulatory law being… you know, some of the venture telecom operators are based in Gurgaon. And Mumbai is a financial capital and, we see […] quite a good number of operators in Mumbai. So, we don’t have a sort of […] telecom headquarters for any of the operators in Bangalore, because they are concentrated in Gurgaon and Mumbai”. Furthermore, GRG-4 highlights that the company has two entities in Gurgaon. He explains that being geographically close to the market oriented entity makes it easier to understand customer requirements. He also adds that are a lot of 3PP in northern India, especially Delhi and Gurgaon.

However, GRG-4 highlight that if there is any weakness with the ecosystem in Gurgaon, it is that the company does not have their own manufacturing facility in the area. Instead, this is located in another cluster within India. He continues by stating that “it makes sense to sometimes be near […] where you are manufacturing your products”. In regards to the presence of manufacturing in Bangalore and Gurgaon, GRG-4 nevertheless explains that both these cities
are not very focused on such aspects although it does exist. He explains that there are other states that have stronger manufacturing profiles, but when comparing the two clusters in matter, Bangalore has more since Gurgaon is close to the capital city. BLR-2 supports to some degree by saying: “Hardware, telecom hardware, […] there are small players in both locations, I mean Gurgaon and Bangalore”. He continues with saying that he does not believe that Bangalore is the location for hardware manufacturing, and “Gurgaon would have an edge over Bangalore, in comparison”.

BLR-2 continues by saying that while he does not believe Bangalore is a “sort of telecom capital”, there is a good amount of companies working with other activities related to telecom operations with high levels of IT participation (e.g. business support systems or operations support systems). Furthermore, from a global perspective those type of local aspects are not significant. In those cases, it is more important with a location with a good talent pool and “which helps [him] set up an organization in not tome with a great sense of adaptability. And that’s where I find Bangalore [...] having an edge with respect to others”. BLR-2 furthermore adds that the company is located in a SEZ, where closely related industries are located together. He explains how there are some IT players having their office next to the company, making it an ICT cluster. He continues by saying that in Bangalore, “...it’s more, sort of, adjacent industries coming together to occupy space in the SEZ”.

BLR-1 considers Bangalore to be more of a competence cluster, rather than a business cluster. He explains that some of the larger service delivery companies are situated in Bangalore, where they also have their headquarters, making it somewhat of a business cluster. Furthermore, BLR-1 considers it to be interesting to meet the Indian consulting companies that are situated in Bangalore. He means that it exists a sort of ‘glocal’ model amongst them, in terms of people being local but a lot of the time feeling as European as Europeans would. He explains that they represent the strength with having a service delivery for R&D or a customer project, being able to easily adapt by going for it and accelerating or slowing down.

Overall, there is a consensus amongst our respondents that the dominant industry in Bangalore is the IT industry. This is supported by secondary sources which explain that Bangalore is one of the largest technology hubs in the world, and houses almost all major IT companies (Adkin, 2009, p. 66; MSME Development Institute, n.d., pp. 1; 9). Although, two of our respondents (GRG-4 and BLR-2) describe Gurgaon as center for telecom, this cluster does in contrary to Bangalore not seem to be dominated by one single industry. It is rather relatively mixed as revealed by the variety of industries that are exemplified by the interviewees Although some argue that hardware, IT and BPO are areas where Gurgaon is considered to be strong (Khomiakova, 2007, p. 367; Rao & Balasubrahmanya, 2017, p. 99), Punia & Cheema (2013, pp. 3-5) expresses that it is a city with a variety of industries. This is furthermore supported by a report conducted through the joint initiative of several actors, including amongst others the Confederation of Indian Industry (CII).

More specifically, four of our respondents (GRG-1, GRG-2, GRG-4 and GRG-4) indicate that there are many related industries in Gurgaon and consequently a good ecosystem for the telecom industry. Insights regarding Bangalore could only be extracted from the interview with BLR-2. Although the evidence is weak, he expresses that the presence of related industries is higher in Gurgaon compared to Bangalore. This is relatively supported by the Wheebox (2016, p. 37) report where it is stated that the State of Karnataka (of which Bangalore is part of), is the preferred state for telecom and allied companies (Wheebox, 2016, p. 37). An overview of the empirical findings can be seen in table 8 below.
Table 8: Summary of related industries

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<tr>
<th></th>
<th>Gurgaon</th>
<th>Bangalore</th>
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</thead>
<tbody>
<tr>
<td>GRG-1</td>
<td>High</td>
<td>N/A</td>
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<tr>
<td>GRG-2</td>
<td>High</td>
<td>N/A</td>
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<tr>
<td>GRG-3</td>
<td>High</td>
<td>N/A</td>
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<tr>
<td>GRG-4</td>
<td>High</td>
<td>N/A</td>
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<tr>
<td>BLR-1</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>BLR-2</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Summary</td>
<td>High</td>
<td>Medium</td>
</tr>
</tbody>
</table>

4.3.4 Firm Rivalry Conditions

In regards to local rivalry, GRG-4 explains that Gurgaon has been the “power corridor for the telecom world” and that many telecom actors are in Gurgaon, including their competitors. He further explains that they are competing for the same marketspace and that there is definitely rivalry and even “cut throat” competition. He states: “from the R&D perspective we don't have any collaborations with them. We just keep an eye on them, thats it.”. Although GRG-3 states that he wouldn’t call it cut throat competition, he also provides a description that portrays a highly competitive environment in Gurgaon. He states: “It is very competitive. It is like [a competitor’s] employees looking for information by what kind of product will be launched by [our company], what practices [our company] is taking for reducing costs and vice versa... But our people are also looking all the time for what [our competitor], or the other [...] companies do in order to reduce costs; are they offering less materials or are they charging less margins, or are they having more production efficiency... so that kind of business intelligence gathering is on day and night.”

GRG-3 also explains that they use some of the same suppliers as their competitors, and that they are in that way aware of each other’s costs. He proceeds by further explaining that collaboration amongst competitors is something that probably only happens in the west: “the media is basically highlighting that all of the telecom giants have come together and then, you know, they're producing technologies with collaboration. But in regions like Asia, I don’t think that happens, I’ll be transparent enough with you.” The presence of high competition in Gurgaon is further supported by GRG-1. He explains that that rivalry is there and that the only form of ‘collaboration’ he could think of was an anti-poaching agreement that they have with Nokia. This is an agreement that prevents the two actors from taking each other’s employees.

GRG-1 further highlights the geographic proximity amongst actors in Gurgaon by stating “And the other telecom giants, or telecom IT companies are in Gurgaon [...]. Further insight is given as he explains the following: “So as ecosystem permits that all the players should be at one place, so we do have competitions offices nearabout. Sometimes we share the same street. So, [our company] and [our competitor] in Gurgaon is I think on the same road. So, you will find all the competition at one place. And all the operator’s offices are also very nearabout”. Similarly, BLR-2 explains that the special economic zones in Bangalore is to some degree organized based on industry, i.e. similar industries tend to be relative close to each other.

In regards to Bangalore, BLR-1 is not sure but believes that there might be some degree of both collaboration and competition. He however argues that the telecom industry is in general characterized by a highly competitive atmosphere. He states: “The traditional telecom culture is very much of rivalry that goes through all layers. It's almost like we're enemies. My image is, in any case, that there is a more open attitude within these domain-related areas than seen
in traditional telecom. Because in telecom you either win or lose”. BLR-1 does furthermore bring to light a broader view of competitions, similar to GRG-1. He highlights that it is not only competition over customers that occurs, but rather also competition over resources such as human capital and competition over customers. Regarding Bangalore, BLR-2 explain that it is highly competitive there, but continues with “my experience is that, you know, when it comes to work and the level of seriousness towards the work, it is better in Bangalore, its slightly better in Bangalore compared to Gurgaon”. The presence of more collaboration in Bangalore from a more generic industry perspective is supported by GRG-1.

Overall, Gurgaon is portrayed as a very competitive environment by five of our respondents (GRG-1, GRG-2, GRG-3, GRG-4 and BLR-2). Most of them do for instance bring to light how the actors in the region monitor each other in terms of how costs are reduced and efficiency improved. The only sign of collaboration, if anything, was mentioned by GRG-1. He explained that the company has an anti-poaching agreement with one of the competitors, but this rather reinforces the idea that there is high competition since it indicates that the actors feel a need to protect themselves from the rivalry. Also, as highlighted by several of the interviewees, most offices are located in designated SEZs due to the various benefits that can be gained from being situated there. According to Porter (1990a, p. 85), geographic proximity intensifies local rivalry. This thereby further supports the presence of local rivalry in Gurgaon since the telecom actors commonly cluster around the same areas within the city. Similarly, one can argue that local rivalry is to a certain degree intensified by geographic proximity in Bangalore. There are however more indications of collaboration occurring in Bangalore compared to Gurgaon, mainly based on the response from BLR-1 who assumes that both collaboration and rivalry is likely to exist in Bangalore. One could however question this as he is European, and as suggested by GRG-3, the idea of collaboration is more of western mentality. It is in this regard essentially local people who work in these offices, although the companies themselves may be western and collaborations could possibly be initiated from higher up. Both BLR-1 and BLR-2 are nevertheless modest in regards to the presence of local rivalry in Bangalore, thereby indicating that there is relatively more rivalry in Gurgaon compared to Bangalore. This is shown in table 9 below.

Table 9: Summary firm conditions

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<tr>
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<th>Gurgaon</th>
<th>Bangalore</th>
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<tbody>
<tr>
<td>GRG-1</td>
<td>High</td>
<td>N/A</td>
</tr>
<tr>
<td>GRG-2</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>GRG-3</td>
<td>High</td>
<td>N/A</td>
</tr>
<tr>
<td>GRG-4</td>
<td>High</td>
<td>N/A</td>
</tr>
<tr>
<td>BLR-1</td>
<td>N/A</td>
<td>Medium</td>
</tr>
<tr>
<td>BLR-2</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Summary</td>
<td>High</td>
<td>Medium</td>
</tr>
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</table>

4.3.5 Policy Conditions

National Government
GRG-3 believe the government is supporting foreign companies and says there overall has been a great push within the last five years. Clusters such as Bangalore and Gurgaon have SEZ. This is something that GRG-1, GRG-2, GRG-3, GRG-4 and BLR-2 all mention, which is where the company has their offices in both Gurgaon and Bangalore. According to GRG-1, the SEZ were an initiative taken back in the 1990s by the Indian government, in an attempt to attract more foreign investments. These SEZs have been forming in most states in India, according to GRG-
3. Moreover, GRG-3 says: “... they have established these special economic zones just to proliferate international trade”. GRG-1, GRG-2 and GRG-3 all explain that SEZ are areas where companies get tax benefits, as well as other exemptions. GRG-1 continues with: “So, if you are importing anything in these zones [...] then your import is free of customs”. This is considered a huge relief for companies in the SEZs. Adding to this, GRG-3 says: “because they have simplified tax systems, there is less red tape which is good for companies that have to have parts flown in from other countries and then exported out on the same day”. Meaning, in the SEZs there is less bureaucracy compared to other places. Furthermore, BLR-2 states the SEZs in Gurgaon and Bangalore are the same. He also explains both foreign and domestic companies tend to be in the SEZs as the benefits are offered to both Indian and foreign companies. However, GRG-3 says that the SEZs are less now, and that they have become overcrowded. He adds that this is more so on the manufacturing perspective rather than the R&D perspective.

In Gurgaon, GRG-4 believes that the SEZs are more beneficial for R&D activities rather than manufacturing activities. There are manufacturing incentives in other parts of the country, outside of Gurgaon. GRG-4 continues with: “I think that situation [...] would be the same for Bangalore also. [...] It has become, first of all, a hub, and second of all it has also become a very growing city in India. So I think that the manufacturing part would be outside of Bangalore”. GRG-4 adds that due to this, he believes that manufacturing is not necessarily proactively facilitated by the government, but R&D definitely is. R&D becomes a normal office, indistinguishable to other offices such as sales offices, which are all in the SEZ. He concludes by saying that he believes this is similar in both Gurgaon and Bangalore.

To summarize, all but one of our respondents explain that the company, in both Gurgaon and Bangalore, is situated in a SEZ where different benefits and incentives have been provided by the government. According to two of our respondents (GRG-4 and BLR-2) there are no differences between the SEZs in Gurgaon and Bangalore. Bangalore has however greatly benefitted from its geographical location away from borders and coastlands. This has contributed to the national government historically ‘favoring’ Bangalore over Gurgaon as it resulted in the decision to locate sensitive industries there (e.g. air force and defense), which in turn was followed by establishment of engineering focused universities, institutions and colleges (Basant, 2008, p. 66; Karna et al., 2013, p. 217). The role of the national government in acting as a ‘challenger’ or ‘catalyst’ through which these regions can become more attractive locations, has thus historically been greater in Bangalore compared to Gurgaon. If one however considers the current situation, the interviewees indicate that both cities are supported by the government equally much in the form of SEZ. It can thus be argued that support from the Indian government is “high” for both Gurgaon and Bangalore.

State Government
GRG-2 do not think there is much difference in government support from the central government between the clusters. This is because regulations such as SEZ are not from state policies, but international trade regulations are regulated by the central government and are the same for all states, as GRG-3 explains it. Meaning, the state government cannot impose their own rules when it comes to the SEZs. However, GRG-2 believes that locally, the state government support is better in Bangalore compared to Gurgaon. For this he argues that for startups, Bangalore is the more obvious choice of a cluster, and that he believes it to be a little bit harder in Gurgaon.

Furthermore, an issue GRG-1 believes exist in Gurgaon related to the local policy makers, is that when you wish to set up any organization you have to get a lot of approvals from multiple
authorities: “There is no single window approval as China is having”. He believes that if this is sorted out in India, with a more centralized system, then it will be much easier for foreign firms and/or foreign investments to open an R&D center in India. In this case, he thinks it might be different in different states, for how complicated the process is, sometimes some states are more liberal while others are stricter. This is further supported by BLR-1 and BLR-2. BLR-1 adds that India is not one single country, it is several countries in one. Moving things around in India can become very costly, due to taxes and customs. This issue does not just relate to hardware, but also employees and builders who travel to different states in India to work. In regards to local policies, GRG-1 believes that Gurgaon is more on the liberal side. He continues: “So, Gurgaon needs investments, so I think the rules and regulations are more user friendly compared to other hubs”.

While there may be some smaller problems from the local policy makers, GRG-3 do not consider them to be very persistent. Local problems can arise leading to local protests and local politicians not complying to what a company may require, like allocation of land and constructions of structures. But eventually it will get solved. However, GRG-3 believes that these types of problems are reducing, and that protests are not common anymore. In contrast to GRG-3, BLR-2 do not believe local policy makers in Bangalore nor in Gurgaon has imposed any challenges for companies.

In Bangalore, BLR-2 do not consider the local policy makers to have much of an effect on the company’s work. He states: “...for my nature of work, we are not that impacted by any change in policy. Because, [...] my team is more global team, and there has been no significant change in the labor laws as well. So, overall I think it’s a stable environment here”. Similar to Gurgaon, the company is located in a SEZ in Bangalore as well. He explains: “Because [SEZ] are created to boost the business, and you know [the company’s] offices are [...] in Bangalore also in [SEZ]”. Moreover, BLR-2 do not consider there to be much incentives from the state government for the company and other corporations to be located in Bangalore. This is furthermore supported by GRG-4 who believe the incentives for generic industry activities between Gurgaon and Bangalore are about the same. However, he does think there might be a little bit better in Bangalore in regards to R&D.

GRG-1 and GRG-3 believes there are differences between Bangalore and Gurgaon, in the sense that Bangalore is an early starter, while Gurgaon is about a decade behind. GRG-3 adds that this “... is basically dependent on the government policies” and that the Haryana government, which is the state Gurgaon belongs to, maybe realized the potential of the IT business later, resulting in them making the policies and reduced rent a little later than Bangalore. “It is all about timing”, he believes. Compared to Gurgaon, Bangalore has many more SEZs according to GRG-1. BLR-1 adds, that Bangalore as a cluster has managed to create an atmosphere where it is a place many companies want to locate to.

Furthermore, GRG-1 adds that why the company is in Gurgaon is that the transport and other infrastructure is very nearabout. However, he believes the infrastructure to be better in Bangalore compared to Gurgaon and that Bangalore is the better R&D hub. He explains, that this is because they started in the early 1990s, over Gurgaon where the infrastructure didn’t start up until the year 2000 and onwards. GRG-2 argues against this, as he states that Gurgaon is much better in terms of infrastructure. Travelling through Gurgaon takes less time than travelling through Bangalore. He says: “I think the city is more congested in Bangalore” and there are a lot of traffic jams in Bangalore, arisen since the city grew so fast. Roads and such is much better in Gurgaon, which he believes is most likely due to Gurgaon being part of the NCR
which is well connected with Delhi. This is furthermore supported by BLR-2, who believes transport to be better in Gurgaon than Bangalore. He states that commuting to the office is not easy in Bangalore, and similar to GRG-2, believes there to be a lot of traffic jams in Bangalore compared to Gurgaon, the infrastructure in Bangalore is not able to keep up with the growth of population.

Moreover, BLR-2 says: “when it comes to proximity to the regulatory, stakeholders and ministries, Gurgaon scores high compared to Bangalore”. More specifically, he explains: “... the telecom regulatory is based in Delhi, similar, Operators Associations of India is based in Delhi, and then obviously the telecom ministry, the parliament is based in Delhi. So, [...] the business establishments wants to keep themselves close to these stakeholders, so that it is easy for them to run their business”.

To conclude, Anil et al. (2007, pp. 697-608) highlight the role of local policy makers in India, meaning they can promote or hamper the attractiveness of a region by how they decide to spend their budgets and implement policies. There are however not many local initiatives for improving the attractiveness of the regions brought to light by any of the interviewees. They mainly speak about SEZ, which rather is an initiative imposed by the national government. Relative to each other, several of the interviewees do however indicate that the local policy makers for Bangalore have been more proactive than those in Gurgaon. This is for instance supported by how the state of Karnataka early on invested in different industries in Bangalore (Basant, 2008, p. 67; Collato, 2010, p. 54; Narayana, 2011, p. 1293). The local policy makers for Gurgaon have relative to Bangalore largely embraced a ‘laissez fair’ approach (Yardley, 2011 cited in Cowan, 2015, p. 63). Although they have historically been different in terms of how proactive the policy makers have been, the indication from the interviewees is nevertheless that Bangalore still has more support as shown in table 10 below. The only one who indicate that the policy makers in Gurgaon are better facilitators based on how it is currently, is BRL-2. In this regard, he explains that he has not noticed much state level initiatives that have impacted their work, but Gurgaon do offer better infrastructure.

Table 10: Summary state government

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<thead>
<tr>
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<th>Gurgaon</th>
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<tbody>
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<td>GRG-1</td>
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<tr>
<td>GRG-2</td>
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<tr>
<td>GRG-3</td>
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<tr>
<td>GRG-4</td>
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<tr>
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<td>Low</td>
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<td>Summary</td>
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4.3.6 Network Conditions

Global Network Linkages

Since the company mainly has global customers (mentioned in 4.3.2) in both Bangalore and Gurgaon, and global suppliers (mentioned in 4.3.3) in Gurgaon, their networks are predominately global. GRG-2 explains that within the company they have five market areas, where India is in the South-East Asian one. While he sits in Gurgaon and work under the South-East Asian section, they are part of the global team and interact with all the market areas. GRG-1 supports this by saying: “If we need it, we reach out to our global organization as well. From that perspective I think we have good connections”. He proceeds by clarifying that it is mainly
connections with the company in other locations, and thus indirect communication with customers. Regarding their global network, GRG-3 adds: “... they are all around the world, because we address to about 140 countries in [the company]”. On a day to day basis they are in contact with people from across the world. He gives an example: “... if we have to help someone sitting in [the company] Egypt with an RFP, he may need all kinds of support on [the company] emails, on Skype, on video conferencing, on phone calls, maybe in some cases even on WhatsApp. It happens from all sources, whatever is possible at the time”. Moreover, it is not just over a distant they give support to the company’s other market areas and other facilities. They also interact with customers face-to-face. GRG-3 provides an example of this as he explains that he for instance was involved in an RFP that required him to travel to Sri Lanka 2-3 times. Continuing, GRG-4 adds that interaction with their suppliers is mainly global. Even a lot of the suppliers that have offices in Gurgaon, are also based and operates globally, making the interaction global itself.

Similar to Gurgaon, BLR-2 explains: “my team [...] we support [the company] internal teams, who interfaces with customers. So, we have customer units in [the company] who are the face of [the company] towards the customers. So, we support those teams”. He furthermore says: “Our customers, major customers, are from Europe, Latin America, Middle East and Africa. So, [...] my team doesn’t work that much with North-East Asia or North America. North America we have limited interaction. The major work that we do is towards Middle Eastern countries, African countries, Europe and Latin American countries”. BLR-2 does however indicate that they have less global suppliers than local ones.

Furthermore, GRG-3 mentions that in Gurgaon, they use 3PP products combined with the company’s solutions, and thus have to invite goods and process from vendors to add to the solution. There are cases where they have to offer products that are not within the company’s portfolio, which is where he means they may have to interact with 3PP suppliers who are not all connected to the company. With those vendors, the company need to have a negotiation on technical and commercial terms. He explains that they do this, because they offer complete solutions for their customers.

Suppliers are important to the company, GRG-4 highlights that in Gurgaon they interact a lot with their suppliers as they must nurture those relationships. Moreover, GRG-4 says that customers impact their work in the sense that they are the ones coming with requirements for the offered solutions. Then, they turn to the suppliers in order to fulfill what the customers asks for.

Overall, the company’s network is predominately global with mostly global customers for both Gurgaon and Bangalore. According to two of our respondents (GRG-3 and BLR-2) the company work mostly with internal customers, i.e. the company’s own entities inside and outside India. This is supporting Lam (2003, p. 675), who presses on the benefit for a firm to not only have networks outside the company, but also to actors within the company at different hierarchal levels. Moreover, it also supports the theory that states it beneficial to have networks that are geographically distant to the cluster (Bathelt et al., 2004, p. 32; Boschma & Wal, 2007, pp. 181-182; Lam, 2003, p. 676). In regards to suppliers however, it is indicated that the entity in Gurgaon has more global suppliers relative to Bangalore. More specifically, about half of the suppliers in Gurgaon are global whilst BLR-1 express that they mainly use local suppliers. Relative to each other, the empirical findings do thereby indicate that Gurgaon have more global network linkages than Bangalore. This is shown in table 11 below.
<table>
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<tr>
<th></th>
<th>Gurgaon</th>
<th>Bangalore</th>
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<tbody>
<tr>
<td>GRG-1</td>
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<tr>
<td>GRG-2</td>
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<td>GRG-4</td>
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<td>Summary</td>
<td>High</td>
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</tbody>
</table>

**Local Network Linkages**

Connecting back to their customers and suppliers, while both are predominately global, there are local interactions occurring as well. GRG-2 brings up that they have customers, such as Indian operators, who have offices in Gurgaon. Our respondents, who work in the global entities, also interact with local actors that are a part of the company. As mentioned in 4.3.2, the company has two entities in Gurgaon, and these interact with each other. BLR-1 adds, that in Bangalore they interact with consulting businesses. This gives them an efficiency to their projects since it is easier to adapt the workforce to how many are needed on the different projects. Furthermore, as previously mentioned, GRG-4 says that half of their suppliers are local in Gurgaon, and half is global. Their solutions are customer specific, that is why he thinks “it makes sense to have a R&D center near [Gurgaon] because then people from the R&D center can actually go and... going with the customer discussions”. Whereas in Bangalore, according to BLR-2, they primarily deal with local suppliers.

In regards to the company’s interaction with local universities, GRG-2 and GRG-1 mention that the company has a collaboration with one of the more prominent universities in the area, namely the Indian Institute of Technology in Delhi (IIT Delhi). GRG-2 states: “[the company] interacts with them, but actually it’s not my department. But [the company] is having... setting up 5G test labs in IIT, Indian Institute of Technology, which is a top notch institute.”. Similarly, GRG-1 explains that his team are connected to IIT. He states: “So the company in India has a unique setup with IIT... IIT Delhi. They are actually sponsoring 5G research activities as well. So IIT Delhi and [the company] is driving 5G research activities together. To promote a awareness about 5G use cases. So yes, the company is engaged at the moment”.

GRG-2, GRG-1 as well as GRG-3 do also explain that they occasionally interact with universities for getting certifications about their technology. GRG-2 provides more insights by explaining that interaction for certification cases is conducted through their subsuppliers. He states: “[our subsuppliers] interact on our behalf to these universities for getting certificates. But, in that case, we have similar activities in Mumbai, Delhi, and with other IIT. I am not sure we have IIT in Bangalore [...] But of course, in Bangalore, we have other institutes”. GRG-3 also provide insights on the company’s relationship with universities for certification purposes by stating: “For product development, for research [...] Only in specific cases where the customer has requested us to validate a product from a research center. Like if there are some reputable universities, like Indian Institute of Technology in Delhi, which is kind of like a hub for radio research. [...] But that's not a lot. That may be once in 3 years or 4 years, or something like that. So it's not voluntary, it's basically if there is a requirement for that”.

In regards to other forms of interaction, GRG-1 mentions that the hiring of new personnel is managed by the HR department and that they might have their own connections to universities.
This is further confirmed by GRG-3 who responds to the matter of whether they interact with universities in the following way: “Let's say, I mean for recruitment, yes [...] for recruitment cycles it may happen. But for product development, it is there - I won't say it is not - but it is less”.

In regards to Bangalore, BLR-2 does on the other hand explain that he has hired many people from universities. He more specifically explains that 60 fresh graduates were hired from universities across the country in 2016. BLR-1 does however in this matter not know. When asking about whether the Bangalore office has a relationship with universities he responds in the following way: “That’s a good question...but I don’t think so. As I said, when I consider research collaboration, they are often very focused on universities in [our home market]. We have most research in [related fields]. Much less in the software area. And then it has been that research has been very much in symbiosis with universities [here in our home market]”.

To summarize, the company’s local network involves both suppliers and universities. Half of the suppliers in Gurgaon and most of the suppliers in Bangalore are local suppliers. Meaning, they have more global suppliers in Gurgaon in relative to Bangalore. In regards to universities, there are similar levels of interactions with local universities in Gurgaon and Bangalore, although the purposes are to some degree different. Interaction with customers does also occur in both cities. In this regard, its higher in Gurgaon as they seem to have relatively more customers in the cluster. These findings are summarized in table 12 below.

<table>
<thead>
<tr>
<th></th>
<th>Gurgaon</th>
<th>Bangalore</th>
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</thead>
<tbody>
<tr>
<td>GRG-1</td>
<td>Medium</td>
<td>N/A</td>
</tr>
<tr>
<td>GRG-2</td>
<td>Medium</td>
<td>N/A</td>
</tr>
<tr>
<td>GRG-3</td>
<td>Low</td>
<td>N/A</td>
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<tr>
<td>GRG-4</td>
<td>Medium</td>
<td>N/A</td>
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<tr>
<td>BLR-1</td>
<td>N/A</td>
<td>Medium</td>
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<tr>
<td>BLR-2</td>
<td>N/A</td>
<td>High</td>
</tr>
<tr>
<td>Summary</td>
<td>Medium</td>
<td>High*</td>
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</tbody>
</table>

* Bangalore gains a higher score in terms of local networks, due to their larger base of local suppliers than Gurgaon. Thus, we argue they have more local interaction.

**4.3.7 Exploration and Exploitation: Location Choice**

In regards to the presence of research activities in the Bangalore office, BLR-1 explains that the company has largely centralized such activities to its home country. This is relatively supported by GRG-3 who explains that research activities are conducted in Gurgaon but to a very limited degree, whilst stating that this could be why they have limited relations to the local universities. Similarly, GRG-1 states: “we do have certain research units, which do these activities. But that is very limited amount of activities we do here”. Further insight is given by GRG-1 who explains that India has to some degree proven their competence but in general still needs to improve its reputation in regards to research activities. He states: “Research... I don’t have much insights but what I know is that there are organizations available. And India are still perceived as technology followers. So, we are not considered good inventors so far. So, that I think... image needs to be improved and lots of work needs to be done”.

GRG-4 do however reveal that more research is conducted than suggested by the above. He similarly to all the other interviewees states that their work is driven by customer requests, but
he further explains that this work involves innovation activities for both new and existing products. He also explains that the office in Gurgaon works closely with the R&D department in the company’s home country. He even refers to themselves as an “extension of the office in [the company’s home country]”. Related to this matter it has also come across that they have both scientists and engineers as part of their workforce in Gurgaon.

When nevertheless comparing Gurgaon and Bangalore specifically, GRG-1 explains that to his knowledge, “Bangalore is the number one as a R&D hub”. He states “I think Bangalore is a much more suitable place because they have everything established. But Gurgaon is still doing a lot of things”. In relation to this, GRG-1 highlights how Bangalore’s development started about a decade earlier than Gurgaon. The later development of Gurgaon compared to Bangalore is also highlighted by both GRG-3 and GRG-2. GRG-2 does for instance state that Bangalore is often a natural choice and refers to the better ecosystem and environment in relation to both the location for research and development activities.

According to GRG-4, Gurgaon is a good location for telecom related R&D activities because of the whole ecosystem that makes it easier. He explains that they have many suppliers, key customers and related companies that are present in Gurgaon, although one can begin to see a shift in the telecom industry towards Mumbai. If anything, he explains that the only weakness with Gurgaon for them is that their manufacturing is located in Pune. This is however not considered a big problem since they have established good coordination. But although Gurgaon is good for telecom related R&D activities, GRG-4 states that Bangalore is from a more general perspective better. He states “in that case Bangalore would be better. If you are just having a generic industry approach by considering all research and development [...] Bangalore would be definitely better”. He does however continue by making a separation between software and hardware related R&D activities by saying that Bangalore is especially good for the former and less good for the latter. He states: “Bangalore does not look like a very good lucrative R&D place from a systems hardware or systems R&D part. It’s good for IT and IT systems for sure”. Similarly, BLR-1 states the following about Bangalore: “We speak very much about software when we speak about India but... and now I can go for the information I've heard from suppliers... for example, if you would like hardware development in India - because we have this – then you should not put it in Bangalore. Then you should put it in other areas close to manufacturing and things like that. In that case I have heard that for instance Hyderabad is a good location[...] But if you similarly to me work more with software, then Bangalore is the big attraction”.

According to BLR-2, the same benefits that Bangalore offers to his pre-sales team can be considered advantageous characteristics for R&D activities. He explains that Bangalore is an attractive location due to the large, talented, adaptive workforce that can be found in and around the areas of Bangalore. He also highlights Bangalore’s history: “Bangalore’s location is a benefit in terms of easy access to competence from both [Karnataka and Tamil Nadu]. So that’s number one. And there are fantastic institutions within the vicinity of Bangalore... let’s say 200-250 km from Bangalore. It gives lots of reach to talent. And then Bangalore, by its legacy since the late 90s, there are a lot of idea establishments in Bangalore [...]. So Bangalore has the benefit and stands apart compared to other clusters from this aspect”. BLR-2 does however also explain that from an Indian perspective, Bangalore is not really a telecom capital and is mainly suitable for IT related telecom activities (e.g. business support systems or operations support systems).
As shown in table 13, the interviewees have different opinions in regards to whether Gurgaon or Bangalore is a better location choice for research and development activities. Whilst two of the respondents (GRG-1 and GRG-2) indicate that Bangalore is a better choice three of the respondents (GRG-4, BLR-1 and BLR-2) indicate that Gurgaon is a better choice. This difference can however be explained by a possible difference in perspective. It is not fully clear whether GRG-1 and GRG-2 are arguing for Bangalore from a generic industry perspective, or from a telecom perspective. Mainly GRG-4 and BLR-2 do however more clearly indicate that although they from a generic industry perspective believe that Bangalore is a better choice, Gurgaon is better from a telecom perspective. Given this, we argue that the better location choice relative to each other is considered to be Gurgaon. This goes for both exploration and exploitation, as the interviewees do not indicate that there is a difference between the location choice for research and development activities.

Table 13: Summary of exploration & exploitation

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<th>Gurgaon</th>
<th>Bangalore</th>
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<tr>
<td>GRG-1</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>GRG-2</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>GRG-3</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>GRG-4</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>BLR-1</td>
<td>N/A</td>
<td>Medium</td>
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<tr>
<td>BLR-2</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Summary</td>
<td>High*</td>
<td>Medium</td>
</tr>
</tbody>
</table>

* Unlike GRG-1 and GRG-2, the others are more clearly indicating that Gurgaon is better from a telecom perspective. Thus, the others response is weighted higher.
5 Analysis and Discussion
In this chapter, differences and similarities will be analyzed and discussed. It will be based on the empirical research and findings, and viewed through the perspective of the theoretical framework. As part of this, the implications that the identified similarities and differences have on the location choice of exploration and exploitation activities respectively will be discussed.

5.1 Overall Similarities and Differences
Based on the literature review, it was revealed that integrating insights from IB and EG, by considering both place and space attributes when evaluating the attractiveness of regions for the location choice of R&D investments, is a fruitful means for better understating how location choices are made by MNEs. The more specific place and space attributes of regions relevant from a R&D perspective, was based on Porter’s Diamond Model and Network linkages subsequently identified. Related to these, the empirical findings reveal that the two clusters have different profiles. Although they have certain attributes that are similar, more differences than similarities can be found. Even though the factor condition ‘research center’ has been disregarded due to insufficient and questionable results, table 14 shows that the clusters are diverse in accordance with how it has previously been argued that India has regional variations.

<table>
<thead>
<tr>
<th>Table 14: Comparison of Gurgaon and Bangalore (Gurgaon:       , Bangalore:        )</th>
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<tbody>
<tr>
<td><strong>Factor Conditions</strong></td>
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<td>Human Capital</td>
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<td>Cost of Human Capital</td>
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<td>Presence of Universities</td>
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<td><strong>Demand Conditions</strong></td>
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<td><strong>Industry Conditions</strong></td>
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<td><strong>Firm Conditions</strong></td>
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<td>Local Rivalry</td>
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<td><strong>Policy Conditions</strong></td>
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<td><strong>Network Conditions</strong></td>
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<td>Global Networks</td>
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<td><strong>Exploration vs. Exploitation</strong></td>
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<td>Exploration</td>
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<td>Exploitation</td>
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The similarities and differences between Gurgaon and Bangalore, as shown in table 14, will be analyzed in the upcoming sections. Given that most of the respondents argue that their R&D activities are more oriented towards development activities, the impact that the different location characteristics of the two cities have on location choice must however also more closely be evaluated from an exploration and exploitation perspective respectively. As suggested by for instance Demirbag & Glaister (2010, 1556) and Erken & Kleijn (2010, p. 208), research oriented and development oriented R&D activities have different location characteristics under which each prospers more effectively. The inherent difference between research and development can thereby moderate the location choice of R&D investments by reacting differently to a set of locational characteristics. As previously mentioned, Von Zedtwitz & Gassmann (2002, pp. 584-585) does in this regard broadly highlight how the location of research activities is “driven by access to local science and absorption of know-how of global value” whilst the location of development activities is driven by “understanding and reacting to the local market and the efficient cooperation with local customers (manufacturing, development partners). We will thus below in addition to analyzing the differences and similarities, consider the impact that those variations have on the location choice of research and development investments. I.e. we will consider how attractive Bangalore and Gurgaon are from a research and a development perspective respectively based on the similarities and differences between the two clusters as shown in table 14.

5.2 Factor Conditions
The importance of human capital for R&D activities is more or less unquestionable. It is recognized as an important location determinant by several scholars, including Demirbag & Glaister (2010, p. 1534), Erken & Kleijn, (2010, p. 203) and Siedschlag et al. (2013, p. 1428). In support of this, one could argue that although all other elements of a region’s place and space attributes may be good, they have little impact unless a company has a talented workforce that can turn those advantages into something useful. Human capital does in this manner play an essential role for the success of such activities. Talented labor has in accordance with this been a major incentive encouraging companies to locate their R&D investments in emerging markets such as India. This is more specifically highlighted by how Kumar (2001, p. 163) explains that the competitive advantage of India is its large pool of talented labor. This high availability of has been confirmed by the empirical findings. The empirical findings reveal that both Gurgaon and Bangalore offer a good amount of talented human capital. Relative to each other, table 14 does however show that there is a greater availability in the latter. This is also relatively in accordance with how Anil et al., (2007, pp. 599-600) highlights Bangalore and explains that this cluster offers an abundance of highly skilled human capital. Although both cities offer a good amount of human capital, the difference in terms of Bangalore having more, suggests that it is easier to scale up in this city. It is easier to quickly find a large amount of labor when there is a need rapidly set up a new organization or scale up existing activities. Although the findings reveal that there is a great willingness amongst Indians to move for job opportunities, having suitable people in the city can make the process of scaling up more efficient. People may be able to start the job more quickly, without having to think about finding an apartment and moving one’s entire life, thereby reducing potential time lags. In this regard, one may argue that waiting for the most optimal personnel is more important and of greater value than finding human capital quickly. But in this regard, there could be a difference between exploration and exploitation.

As highlighted by March (1991, p. 85), exploration and exploitation activities are different in terms of e.g. their expected values and timings. Whilst the returns of exploration activities are
uncertain, distance and often negative, the returns of exploitation activities are positive, proximate and predictable (March, 1991, p. 85; OECD’s 2015, p. 45). Consequently, exploration activities are believed to provide value in the long run, whilst exploitation activities are expected to provide value in the short run (Cheng & Van de Ven, 1996, p. 595). Given the longer time horizon during which exploration activities are expected to deliver results, one could argue that it is less likely to occur situations where a research oriented R&D facility must quickly be able to scale up activities and hire a large amount of talented human capital. Given the large amount of uncertainty involved, one could argue that it is rather more important to take one’s time and make sure that the right person(s) are being hired, even if it requires one to wait before they are able to move into the city or resign at a previous job. There is on the other hand more likely to arise situations where exploitation activities must be scaled up quickly. Given the shorter time horizons during which results are expected to be delivered, one could argue that exploration activities have greater pressure on them to deliver fast, even though this pressure is to some degree relieved by how there is less uncertainty involved in exploitation activities. This is further supported by how the company for which the interviewees work, have explained that they mainly work with addressing customer requests based on which offerings are customized. If there suddenly is a large influx of requests coming in, one must be able to scale up quickly by for instance finding relatively large amounts of talented human capital within a short time. Otherwise business risks to be constrained. With the larger pool of talented human capital in Bangalore, one could thus argue that this city is a good location choice for mainly exploitation activities. In regards to exploration activities, the higher availability can also be considered valuable, but not necessarily an important location determinant when comparing the attractiveness of Gurgaon and Bangalore for the location of such investments.

When contrasting the availability of talented labor with having low cost of human capital, many argue that the former is more important (see e.g. Erken & Gilsing, 2005, p. 1089). Low cost of human capital is nevertheless one of the attractive aspects of many emerging markets such as India (Kumar, 2001, p. 163). Several scholars, including Demirbag & Glaister (2010, p. 1534) have identified it as a relevant location determinant for R&D activities. Considering the inherent difference between exploration and exploitation activities, it can however be argued that it is mainly important in regards to the location choice of exploitation activities. Such activities are oriented around using knowledge gained from research or practical experiences to systematically create additional knowledge that is directed towards the improvement or production of new products and processes (OECD, 2015, p. 45). As part of this, costs can be considered an area of improvement. When it comes to exploration activities, such investments are however “driven by access to local science and absorption of know-how of global value” (Von Zedtwitz & Gassmann, 2002, pp. 584). Central to such activities is therefore the ability to learn and increase one’s stock of knowledge. Although low costs can still be considered beneficial, it consequently is of much lower importance. This is further supported by how Von Zedtwitz & Gassmann (2002, pp. 584) has identified ‘country-specific cost advantages’ as a location determinant for exploitation activities and not for exploration activities. When comparing Bangalore and Gurgaon for determining which location is a better choice for exploitation activities from a cost of human capital perspective, table 14 shows that the two clusters are similar. There is no significant difference between them in regards to the cost of human capital. This suggests that other locational characteristics will play a more determining role if one were to choose between Bangalore and Gurgaon for exploitation investments. This would thereby be similarly to how the location of exploration investments is rather determined by other attributes since costs has less of an importance for such activities.
In regards to the presence of universities, existing literature have revealed that such institutions are important location determinants (Siedschlag et al., 2013, p. 1420; Thursby & Thursby, 2006, p. 28, pp. 2-3). This is for instance made clear by how many company’s cluster in areas where several universities exist (Patra, 2017, pp. 562-564). The importance of proximity to such institutions is related to the access to knowledge they provide (Demirbag & Glaister, 2010, pp. 1538-1539). Given that universities are essentially generating and spreading knowledge, one can access knowledge spillovers from them through several means. One can for instance hire graduates from them, as seen in the case of the company from which the empirical findings have been gathered. Alternatively, knowledge from universities can be transferred to a company in a more intentional manner. This can be done through establishing collaborations as also seen in the empirical findings where it has been revealed that the company sponsors 5G related research in a local university. Universities can consequently overall help one increase the stock of knowledge, whether it is in a formal, informal, direct or indirect manner (Bathelt et al., 2004, pp. 21-22; Porter, 2000, p. 16, 23; Rao & Balasubrahmany, 2017, p. 95). Comparing Bangalore and Gurgaon, it has been revealed that the former has a greater presence of universities table 14. Not only are their more in general, but there are also indications that there are more in terms of the number of universities considered to be prominent. Given that the value of being close to such institutions is related to accessing knowledge spillovers, it can thereby be argued that Bangalore provides more access to knowledge than Gurgaon.

The advantage that Bangalore has in this regard can mainly be considered impactful in relation to the location choice of exploration oriented R&D investments. Exploration activities are essentially about searching and discovering new knowledge as previously mentioned (March, 1991, p. 85). The location of such activities is thus largely influenced by where there are learning opportunities. This is for instance reflected by the prominent necessity of scientists (Von Zedtwitz & Gassmann, 2002, p. 570). In comparison to exploitation activities, exploration activities are knowledge driven to a greater extent since the former largely builds on existing knowledge. Although high presence of universities is valuable for exploitation purposes as well, the limited importance and determining function of its location choice that universities have is further supported by how the case company’s R&D offices in both Gurgaon and Bangalore have relatively limited interaction with the local universities in comparison to the facilities in the company’s home country. Whilst the offices in India are largely oriented towards exploitation in the form of customizing offerings by building/extending on existing knowledge, the empirical findings reveal that the R&D facility in the company’s home country conducts exploration activities to a larger extent. Relative to each other, it has been indicated that the research oriented facility in the home country has more interaction with local universities than those in India. Empirical findings do however reveal that there are occasionally other purposes for interaction with universities, i.e. forms of interaction where the benefit of proximity does not revolve around the gathering or generation of knowledge. This is related to the service the universities provide in terms of creating certifications through which the company can ensure their customers that their technology lives up to requirements. This is however not directly related to R&D, but rather related to the company’s sales activities. It can nevertheless be said that Bangalore is a better location choice given the greater presence of universities and subsequently the greater access to knowledge that this city provides. Although it can also be considered beneficial for exploitation activities, it does generally not have a large impact on where such investments are located.

Overall, it has been shown that Bangalore and Gurgaon are similar in terms of the cost of human capital. This attribute is thereby not considered to be a determining location characteristics when comparing these two cluster. They are however different in regards to the availability of
human capital and the presence of universities. In regards to both these aspects, Bangalore has an advantage. There is larger pool of talented human capital, and a larger number of prominent universities in Bangalore compared to Gurgaon. The former attribute is mainly considered an important location determinant for exploitation activities and the latter is mainly considered an important location determinant for exploitation activities. It can thus be argued that Bangalore is a more attractive location for both types of R&D investments as shown in table 14 above. This is can further be argued for considering that both the availability of human capital and the presence of universities are valuable for exploration and exploitation respectively, even if they are not essentially considered to be important location determinants for both.

5.3 Demand Conditions
Comparing Gurgaon and Bangalore, table 14 shows that the two cities are similar in regards to the nature of demand, i.e., they are both exposed to the same level of sophisticated demand. What this means is that both the clusters are more or less equally pushed or pressured into improving and/or expanding their offerings, thereby impacting the performance of a company. More specifically, Porter (1990a, p. 82) explains that a sophisticated market with advanced demands, puts more pressure on firms to be innovative for living up to custumers’ expectations. A firm can thus benefit from a demanding market as it pushes them to continuously upgrade and improve their offerings, which in turn can contribute to the development of more sustainable competitive advantages (Dögö et al., 2012, p. 195; Porter, 1990a, p. 82). Porter (1990a, p. 83) does similarly to Dögö et al. (2012, p. 195) consequently argue that the nature of demand is the most important aspect of demand conditions. The influence of sophisticated demand can further be supported by the empirical findings. It has been revealed that occasionally customer requests may involve technology that the company does not have. In such situations, the request from the customers are passed on to the company’s R&D departments. These can in turn have a closer look and aim to conduct activities through which they can strengthen their offerings and become more competitive in the market. In regards to exploration and exploitation, demand conditions are however mainly highlighted in relation to the latter (Von Zedtwitz & Gassmann, 2002, p. 584).

In contrast to exploration activities, the exploitation activities aim to serve a more specific purpose (OECD, 2015, p. 45). Usually this involves the improvement or production of new products and processes for meeting the needs and demands of certain target groups. Given this, proximity to a company’s target market can be considered important for exploitation activities. This is further supported by how Von Zedtwitz & Gassmann (2002, p. 584) explains that the location for exploitation activities is driven by engineers and market access, it is driven by “understanding and reacting to the local market and the efficient cooperation with local customers”. Consequently, it can be argued that customers and their demands are central to exploitation activities, similarly to how opportunities for discovering new knowledge is central to exploration activities. In regards to exploration activities, these are less oriented towards a specific aim, i.e. there is not directly a need to fulfill specific customer requirements (OECD, 2015, p. 45). There is consequently less emphasis on what specific customer groups are requesting, and more on what the latest research trends are for instance. Given that Bangalore and Gurgaon however are similar in regards to the nature of demand, it can be argued that this attribute of Porter’s Diamond Model has a low determining impact on the location choice of exploitation activities. The clusters shown to be indifferent in regards to the nature of demand, and it does therefore not have any determining function in this context. Rather, there are other elements where the clusters differ that consequently will have a greater role in influencing the choice of location.
5.4 Industry Conditions

Table 14 reveals that there are variations between Gurgaon and Bangalore in terms of the presence of supporting industries, i.e. suppliers. While the empirical findings indicate that there are good amounts of supporting industries in both clusters, Gurgaon seems to have a higher presence when it comes to the telecom industry. Such higher presence can be considered an attractive aspect of regions due to the higher circulation of knowledge it enables (Rao & Balasubrahmanya, 2017, p. 95). Although simply being in a region does not automatically provide access to knowledge as highlighted by Porter (1990a, p. 83) and Ter Wal & Boschma (2011, p. 920) for instance, geographic proximity to supporting industries can at least facilitate interaction with such actors. It is through means of interaction that a firm can in turn access knowledge spillovers and subsequently increase its stock of knowledge (Rao & Balasubrahmanya, 2017, p. 95). More intentional sharing of knowledge can nevertheless also be facilitated by having a high presence of supporting industries in a region. It can for instance encourage closer cooperation or even collaboration through which knowledge can be shared and improve the performance of both parties (Porter, 1990a, p. 83). Bernard et al. (2015, p. 1) suggests that proximity furthermore can enable the matching of suppliers and customers, as such trading relations often are created locally. This can be relatively supported by the empirical findings. Although the findings indicate that suppliers are found through the company’s global sourcing organization, the empirical data reveal that many of the chosen suppliers tend to be local. In this regard, it is further highlighted that having short distances to one’s suppliers enables firms to benefit from lower transportation costs and reduced procurement risks (Holtbrügge & Friedmann, 2015, p. 14; Lall & Mengistae, 2005, p. 14). The higher presence of supporting industries in Gurgaon can thereby further be considered an attractive aspect of this region.

In regards to related industry, this refers to actors that are deemed similar to a firm in terms of (1) using the same technology and/or (2) having essentially the same output and similar inputs (Rao & Balasubrahmanya, 2017, p. 95). Proximity to such actors can provide access to knowledge in a similar manner to that of supporting industries. The presence of related industries can encourage interaction and the spreading of knowledge and/or information through which a firm can increase its stock of knowledge (Rao & Balasubrahmanya, 2017, p. 95). Although Bangalore has many industries as well, the advantage of Gurgaon is based on how there are more companies within the telecom industry. The emphasis on industries that are related to one’s own is important to highlight, as it dictates how relevant and useful the accessed knowledge. It can however also be highlighted in relation to the concept of absorptive capacity and the method through which knowledge and information is processed by firms and individuals. As described by Bathelt et al. (2004, pp. 19-20), recognizing, internalizing and being able to utilize the knowledge and information that reaches a firm requires some preexisting knowledge. More specifically, without having some related preexisting knowledge, it is difficult for one to recognize the value of externally produced knowledge and transfer such knowledge within the firm so that it reaches those who can make use of it. Consequently, Gurgaon provides access to knowledge that is more relevant and useful for telecom firms compared to Bangalore. Gurgaon does nevertheless also provide more opportunities for monitoring one’s competitors. As highlighted by Bathelt et al. (2004, p. 36) and Porter (2000, p. 23), being able to monitor what one’s competitors are doing, firms can gain a better understanding of their performance relative to others. This is important for ensuring that one remains competitive. It can further be highlighted using the empirical findings which reveals that the company tend to monitor their competitors for learning about their costs and how they improve productivity.
Overall, Gurgaon has a better ecosystem for the telecom industry in terms of both supporting industries and related industries as shown in table 14. The greater presence of both supporting and related industries in Gurgaon reveals that this cluster is different from Bangalore in terms of providing more opportunities for knowledge to gain, and having a greater ‘place-to-be’ signal. Specifically related to supporting industries, Gurgaon also provides more opportunities of increasing efficiency through the matching of supplier and customers, and the benefits of having lower transportation costs and reduced procurement risks. These advantages can be considered important location determinants for both exploration and exploitation oriented R&D investments. From an exploration perspective, Von Zedtwitz & Gassmann (2002, pp. 584-585), indicate that attractive locations are those that provide learning opportunities. By being in an area with supporting and related industries, learning opportunities can better be accessed through the facilitation of interaction by geographic proximity. It facilitates opportunities for knowledge spillover through for instance labor pooling, collaborations, or informal interactions with relevant actors (Bathelt et al., 2004, pp. 21-22; Cantwell, 2009, pp. 38-39, Porter, 2000, p. 16, 23; Rao & Balasubrahmanya, 2017, p. 95). From an exploitation perspective, the determining function that related industries have is more related to how it allows one to monitor competitors whilst the determining function of supporting industries is mainly related to the shorter lead times and lower procurement risks. This can be supported by how OECD (2015, p. 45) and Cheng & Van de Ven (1996, p. 593) indicate that exploitation is oriented around making improvements and refinements. Meaning, it is about becoming better, e.g. by creating more efficient and productive processes, products and service.

The advantage of Gurgaon from both an exploration and exploitation perspective can lastly be highlighted in regards to the ‘place-to-be’ effect that the high presence of both supporting and related industries create. As highlighted by scholars such Erken & Kleijn (2010, p. 203) and Faeth (2008, p. 168), firms do tend to follow others. I.e. many decide to locate in places where others already are situated, due to the many benefits of being around supporting and related industries analyzed and discussed above. Although there are indications in the empirical data that the telecom industry in Gurgaon is experiencing a slight shift towards Mumbai, the stronger place-to-be effect in Gurgaon relative to Bangalore nevertheless suggests that this city has a higher potential for gaining an even higher presence of related and supporting industries which in turn further makes Gurgaon a relatively more attractive location choice based on industry conditions.

5.5 Firm Rivalry Conditions

Although all the attributes of Porter’s Diamond Model can impact each other, Porter (1990a, p. 85) argues that firm conditions in terms of local rivalry can have the most impact. He explains that it is a powerful stimulus that can increase the competitiveness and attractiveness of a region (Porter, 1990a, p. 85; Sledge, 2005, p. 30). Given this importance of local rivalry, one could argue that the presence of local rivalry is a valuable attribute that can impact the location choice of both exploration and exploitation oriented R&D investments. In accordance with the essence of R&D, such competitive environments can push and challenge actors within such region towards continuously aiming to improve and upgrade their performance, regardless of whether it involves creating more novel and attractive innovations (exploration) and/or being encouraged to find better solutions through which the cost of existing products can be improved for instance (exploitation). This is for instance supported by the empirical findings which have reveal that the actors tend to monitor what measures their competitors are doing for reducing their costs and increasing efficiency for instance. The occurrence of such monitoring amongst actors in clusters is further supported by Bathelt (2004, p. 36). They explain that monitoring
each other sets a benchmark against which one can compare oneself to others. Given the occurrence of comparisons being made along with a desire to be competitive, one can further argue that local rivalry pushes companies towards improving their performance.

Comparing Bangalore and Gurgaon, table 14 shows that the latter has a higher level of local rivalry present. This means that Gurgaon is different from Bangalore in terms of offering an environment that is more conducive to facilitating a desire and effort towards increasing one’s competitiveness. I.e. there is greater pressure to be better in Gurgaon which in turn can have positive impact on a company’s performance and long term survival. As indicated by Lahiri et al. (2008, p. 314) and Ireland & Webb (2007, p. 49) for instance, continuously changing or improving one’s competitive advantage is highly important in today’s competitive environment, at least if one wishes to survive and succeed in the long run. The higher local rivalry in Gurgaon can be viewed as a reminder of that, as it encourages one to continuously stay alert. Porter (1990a, p. 85) does related to this suggest that geographic proximity magnifies rivalry. This can further be referred to as the reason to why there is more local rivalry in Gurgaon compared to Bangalore. As revealed through the empirical findings, Gurgaon is namely considered to be a center for the telecom industry in India. Although this suggest that there is more local rivalry, it is indicated that such establishments still attract related and supporting actors, causing a ‘place-to-be’ effect as suggested by Erken & Kleijn (2010, p. 203), and further revealing that local rivalry is an attractive attribute that can impact the location choice of exploration and exploitation activities.

Related to place-to-be effect, one could further argue that local rivalry does not only have a significant impact on the place attributes of a region, as highlighted by Porter (1990a, p. 85), but it can also have an impact on the space elements of a region. In this regard, one could for example bring to light how place-to-be effect can encourage new actors to invest in the region. By choosing to locate their R&D investments - or other relevant business activities - in a region, the bring with them their own network linkages that they have with actors outside of a cluster. They are also likely to establish their own networks within the region, thereby becoming a part of the network in the city. Consequently, local rivalry can through creating a ‘place-to-be’ effect facilitate the establishment of more local as well as global linkages which further can increase the attractiveness of a region as will be discussed in section 5.6 below.

**5.6 Policy Conditions**

According to Porter (1990a, p. 87), the governments proper role is to act as a catalyst and/or challenger. Meaning, they can facilitate the different attributes of a location by encouraging or pushing companies towards becoming more competitive and increasing their performance, and in turn increasing the attractiveness of a region. Both national governments and local policy makers can take on this role (Anil et al., 2007, pp. 607-608). Anil et al. (2007, pp. 697-608) does for instance highlight the role of local policy makers in India by explaining that they can promote or hamper the attractiveness of a region by how they decide to spend their budgets and implement policies for instance.

In regards to policy makers on a state level, table 14 shows that those in Bangalore are considered to positively influence their region’s attractiveness to a greater degree than those in Gurgaon. This suggests that Bangalore is subject to more ‘induced’ cluster growth than Gurgaon, and can consequently be believed to have better opportunities for further evolving into an attractive cluster for foreign investors. At least based on policy conditions in terms of state level. In regards to policy makers on national level, table 14 shows that Gurgaon and Bangalore are similar. I.e. the national government does currently not show any indication of
‘favoring’ one city over the other based on the empirical findings. The empirical findings do mainly highlight initiatives in the form of SEZ, but in this regard, there is no difference between those found in Bangalore when compared to those in Gurgaon according to gathered data. The SEZ initiative does nevertheless reveal that the national government acts as a catalyzer in both cities. Through SEZ, they are providing better conditions under which R&D investments can foster. More specifically, SEZ zones can have an impact on such investments from both a cost and performance perspective. If one considers a performance perspective, the benefits of SEZ can attract companies, which in turn increases the density of firms within these regions. This is in accordance with how Erken & Kleijn 2010 (pp. 204-205) explains that governments can implement policies for attracting FDIs. By attracting more actors into the region, this can in turn lead to more networks being built, more local rivalry being present and more knowledge being spread for instance. It can further for instance improve factor conditions by encouraging more human capital to move into these cities due to the greater job opportunities (Porter, 1990, pp. 78-79). From a cost perspective, the benefits in the form of tax exemptions can for instance make it more profitable to import supplies from other countries that may be relatively better than what is possible to find within the region or country in matter.

The above exemplified impact that the national government can have on a region through its SEZs reveals how policy conditions can impact both place and space elements of a region. By acting as a ‘challenger’ or ‘catalyzer’, they can in turn facilitate the other components of Porter’s Diamond as well as we the Network linkages (Anil et al., 2007, p. 595; Dögl et al., 2012, p. 194; Porter, 2000, p. 28). One can consequently argue that the impact of national, as well as state level, policy makers are relevant location determinants for both exploration and exploitation activities. In this regard, table 14 does as already mentioned indicate that Bangalore and Gurgaon are indifferent when it comes to national support. National level policy makers are thus in this context not determining the choice of location for exploration nor exploitation activities since they are indifferent. State level wise, however, table 14 shows that those in Bangalore better facilitate the regions attractiveness. Given this, Bangalore would thus be the choice of location for both exploration and exploitation oriented R&D investments from a policy condition perspective.

5.7 Network Conditions

Network conditions refers to the importance for an R&D investment location to have both local and global networks in order to be considered an attractive location (Bathelt et al., 2004, p. 32; Boschma & Wal, 2007, pp. 181-182; Lam, 2003, p. 676). It is through one’s interaction with different actors that much of the dynamic benefits of being in a cluster can be used to one’s advantage. It is in today’s global and competitive business environment the more dynamic advantages of clustering that are of special importance according to Porter (1996) (Huggins & Izushi, 2011, p. 198). Benefiting from such advantages does however require one to actively build both global and local networks. Related to this Porter (1990a, p. 83) highlights that proximity alone is not a recipe for success. Beyond the trade and transaction costs that can be reduced through proximity, having shorter geographic distances only facilitates interaction. It does not guarantee it (Porter, 1990a, p. 83). Firms do thereby benefit from relationships and networks that are built through actively interacting with others. From a cluster perspective, network linkages can furthermore impact its absorptive capacity and its life cycle.

As presented by the findings, the company’s network is to a large extent global, with mostly global customers in both clusters and with half of the suppliers being global in Gurgaon. Thus, Gurgaon scores higher in regards to global networks relative to Bangalore. If a firm only has access to a local network within a specific cluster, and thus local knowledge, they risk a lock-
in’, which results in the decline of a cluster (Bathelt et al., 2004, p. 42; Boschma & Wal, 2007, p. 181). A global network will bring in new knowledge and information to the cluster (Uzzi, 1997, p. 35), and improving the cluster’s ability to renew itself thus further extend the cluster’s life cycle (Bathelt et al., 2004, p. 2; Boschma & Wal, 2007, pp. 181-182; Rao & Balasubrahmanya, 2017, p. 96). By the company having a global network to such a large extent, they gain new knowledge and information from outside the clusters. By the network in Gurgaon being relatively more global than the network in Bangalore, it gives support to the assumption that the telecom industry in Gurgaon is gaining more knowledge from outside the cluster than Bangalore, and thus is avoiding the risk of a ‘lock-in’ more as well.

The proximity of different actors in one location allows for interaction, from which a local network can form that provide access to knowledge and information between its members (Bathelt et al., 2004, p. 38). With the presence of a local network the firm gain access to the ‘local buzz’, which would be increasingly harder with the absent of a local network (Boschma & Wal, 2007, p. 181). In the company’s case, the local network consists of suppliers and universities in both Gurgaon and Bangalore. The local network in Bangalore scores relatively higher than the local network in Gurgaon. This suggests that the company gains more knowledge and information locally in Bangalore rather than in Gurgaon. From the findings it is clear that Gurgaon is an important cluster for the telecom industry, along with Mumbai. It is further revealed that the competition within the telecom industry is rather ‘cut-throat’ with high levels of rivalry (as analyzed in 5.5). Gurgaon’s lower score relative to Bangalore in regards to their local networks can in this instance be explained by the telecom industry’s high rivalry and low collaboration. The local network in Bangalore, a cluster dominated by the IT industry, is thus not as impacted by the rivalry within the telecom industry.

If one more closely looks at the local and global network linkages from an exploration and exploitation perspective, it can be argued that Gurgaon is the better location choice. Although both global and local networks are important, the fact that there are more local networks in Bangalore and more global networks in Gurgaon reveals that a trade-off must be made in regards to network conditions (Demirbag and Glaister, 2010, p. 1535). The importance of local network is largely related to gaining knowledge and being part of the “local buzz” as explained by Bathelt et al. (2004, p. 31). Global networks are on the other hand important for the long term survival of a cluster. It allows for influxes of new knowledge to enter the cluster, though which the clusters absorptive capacity can be helpful for renewing itself over time and extend its life cycle (Bathelt et al., 2004, p. 2; Boschma & Wal, 2007, pp. 181-182; Rao & Balasubrahmanya, 2017, p. 96).

5.8 Exploration, Exploitation and Location Choice

In regards to the most suitable location choice for R&D investments, table 14 shows that Gurgaon is considered to be the better choice from a telecom industry perspective. Underlying this is empirical data that mainly highlights the presence of customers, suppliers and related industries as advantageous aspects of Gurgaon. This suggests that proximity to customers as well as proximity to related and supporting industries are especially important aspects determining location choices in this context. If it was not for Gurgaon being a central place for the telecom industry, the empirical data does indicate that there is no other major advantage that would have encouraged the company to have R&D activities. It is rather suggested that Bangalore in that case would have been a better option. The company being situated in Gurgaon could thus be explained by how the presence of telecom actors in this city has created a “place-to-be effect”, as suggested by Erken & Kleijn (2010, p. 203). The strong presence of the telecom industry provides many opportunities for e.g. gaining access to knowledge and talented staff
with relevant industry experience. Considering the inherent difference between different types of R&D activities, the previous (see section 5.2 – 5.7 above) does nevertheless reveal that exploration and exploitation activities react differently to the different set of place and space characteristics. Whilst certain aspects are highly important for exploration activities, they may have low importance of exploitation activities and thus not be considered attractive nor determining attributes dictating the choice of location. As highlighted by Porter (1990a, p. 78) one must however view all the attributes as a whole ‘system’. Similarly, Demirbag and Glaister (2010, p. 1535) argues that one must consider all the opportunities and risks of regions, and then choose the location that is most suitable overall by making trade-offs. Following this approach, table 15 below summarizes the above discussion for an overview of which location is attractive based (1) the type of R&D investment and (2) the different place and space aspects.

Table 15: Preferred location choice for exploration and exploitation

<table>
<thead>
<tr>
<th>Factor Conditions</th>
<th>Exploration</th>
<th>Exploitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand Conditions</td>
<td>Bangalore</td>
<td>Bangalore</td>
</tr>
<tr>
<td>(Irrelevant)</td>
<td>(Indifferent)</td>
<td></td>
</tr>
<tr>
<td>Industry Conditions</td>
<td>Gurgaon</td>
<td>Gurgaon</td>
</tr>
<tr>
<td>Firm Conditions</td>
<td>Gurgaon</td>
<td>Gurgaon</td>
</tr>
<tr>
<td>Policy Conditions</td>
<td>Bangalore</td>
<td>Bangalore</td>
</tr>
<tr>
<td>Network Conditions</td>
<td>Gurgaon</td>
<td>Gurgaon</td>
</tr>
<tr>
<td>Location Choice:</td>
<td>Gurgaon</td>
<td>Gurgaon</td>
</tr>
</tbody>
</table>

* Irrelevant = not a significant location determinant
* Indifferent = no significant difference between the two clusters

Overall, table 15 above reveals that exploration and exploitation activities are best suited in Gurgaon in accordance with the empirical findings. Even if Bangalore has its strengths, Gurgaon is a better location choice if one considers all the identified place and space elements simultaneously and make trade-offs. Although the overview reveals that exploration and exploitation activities show relatively similar results, the previous discussions have shown that the choice of location based on the different conditions is in some cases driven by different reasons. This is clearest shown in table 15 in terms of how demand conditions have been considered a relatively irrelevant location determinant for exploration oriented R&D investments, but not for exploitation oriented investments. It can also be reflected by how the previous discussions reveal that the reason for Bangalore being a better choice for both types of R&D based on factor conditions, is due to different reasons. While exploration activities are best suited there due to the high presence of university, exploitation activities are considered best suited there due to the high availability of labor through which quick scaling up of activities can be made more possible. What is worth mentioning is that there may be significant differences and certain elements that have such high importance that one may still be willing to choose Bangalore over Gurgaon. Although such indications have not been found beyond the highlighted importance of industry conditions and proximity to customers, it could possible make one choose the other location even if the overview signals that it is not the region with strengths related to most locational characteristics.

Overall, it has become evident that the location choice of R&D investments is largely impacted by the nature of such activities. They may react differently to the different set of locational characteristics, as the impact of such characteristics are dependent on the importance of them relative to the activity in matter. As argued by Demirbag & Kleijn (2010, p. 1535) one must thus consider the locational attributes as a whole system and make trade-offs that are based on whether one’s R&D investments are geared towards exploitation or exploration. Essentially,
strong enough evidence for the identified similarities and differences has not always been found due to limited data. They are nevertheless indications of the presence of regional variations that could serve as a basis for future research to have a closer look at. As indications of similarities and differences that affect the location choice of research and development activities differently has been found – using an approach integrating insights from IB and EG - this paper has served its purpose in terms of encouraging further research related to identified research gaps.
6 Conclusion

In this final chapter, the main findings of this thesis will be presented. This will be followed by the study’s limitation and contributions, as well as suggested areas for future research.

6.1 Main Findings

Through this thesis it has become evident that observed trends in R&D expenditures reveal that the quantity and geographical distribution of such investments has changed over the past years. Multinational Enterprises (MNEs) are increasingly spending money on R&D investments, as they must continuously improve and upgrade their processes, products and services for establishing long-term success in today’s competitive landscape. One can simultaneously observe that MNEs from developed countries are increasingly making R&D investments in emerging markets. The understanding of how MNEs choose a location for their investments is however limited. Many argue that IB scholars fail to provide an understanding due to their tendency to neglect the role of spatial elements. Even if such considerations are made, it is often done using a country-level of analysis. This is inadequate given the many regional variations of emerging markets. It has in this regard been revealed that India is a country which is relatively understudied on a subnational level. On the contrary to International Business scholars, Economic Geographers emphasize the role of space and place attributes for understanding the geographic distribution of economic activities. They do however treat all firms as being identical and thereby fail to account for how differences in firm-level attributes impact location choices. In this regard, it has generally become evident that many do not recognize the inherent difference between research-oriented and development-oriented activities. Their inherent differences suggest that they prosper under different locational settings and that they thereby are likely to have different geographical distributions.

Given the limited understanding of what determines companies’ location choices for their research and development investments respectively, and the lack of research regarding regional variations within countries such as India, this thesis has addresses the following research question: What are the differences and similarities between R&D city clusters in India, that are significant from a western R&D investment perspective? Through answering the above research question, this paper has aimed to serve several purposes. Firstly, it has aimed to encourage the integration of IB and EG literature for better understanding location choices for economic activities. Secondly, it has aimed to encourage researchers to acknowledge and take into account the inherent difference between research-oriented and development-oriented activities. Thirdly, it has aimed to highlight that regional variation exist in emerging markets on a sub-national level. A sub purpose of this is to encourage more research on India specifically.

For addressing this research question, this thesis has studied Bangalore and Gurgaon which are two growing clusters in India. They have been studied through a qualitative research methodology where interviews have been combined with secondary sources for understanding their differences and similarities, and subsequently their strengths and weaknesses from a research and development perspective respectively. By looking at factor-, demand-, industry-, firm rivalry-, network and policy conditions, it has been found that several areas of similarities and differences exist between the two clusters. In regards to similarities, both have similar levels of costs in terms of human capital; both cities receive support from the national government and both cities largely serve customers across the world, including India, and do thus both provide environments where there is to some degree a pressure from sophisticated demand conditions to be more innovative. In regards to differences, Bangalore has relatively more talented human capital available; Bangalore is dominated by the IT industry whereas Gurgaon is not clearly dominated by a single industry; it has more proactive support from its
local policy makers; it has more local network linkages whilst Gurgaon has more global network linkages; and lastly, Gurgaon has more local rivalry. Based on these similarities and differences, it has further been argued that from a telecom industry perspective, Gurgaon is a relatively better location choice for both research and development oriented R&D investments.

Overall, it has become evident that the location choice of MNE’s R&D investments is largely impacted by the nature of such activities. They may react differently to the different set of locational characteristics, as the impact of such characteristics are dependent on the importance of them relative to the activity in matter. It has consequently been revealed that one must thus consider the locational attributes as a whole system, and make trade-offs. Although strong evidence for the identified similarities and differences has not always been found due to limited data, indications of regional variations in India has been found. As indications of similarities and differences that affect the location choice of research and development activities differently has been found - using an approach that integrated insights from IB and EG - this paper has served its purpose in terms of encouraging further research related to identified gaps.

6.2 Limitations of the Study
This study has been limited to the telecom industry. Although this was not initially intended, the company from which interviewees has been found operates within the telecom industry. By only using interviewees from the same company and industry, avoiding industry bias is fruitless. Comparing Gurgaon and Bangalore from a telecom perspective only can nevertheless be considered to have increased comparability given the small sample size. The choice of clusters to compare has in turn be dictated by where the company has its R&D facilities in India. It can however be argued that both Gurgaon and Bangalore have been interesting companies to look at, as they have previously not been compared to our knowledge. Both are furthermore clusters which are increasingly gaining foreign R&D investments (Patra & Krishna, 2015, p. 19).

Another limitation of this study is related to the small and homogenous sample size. The sample of interviewees only consists of men, with similar ages, mostly Indians and from the same company in the telecom industry. Moreover, our sample includes four interviewees from Gurgaon, and only two from Bangalore. This may very well have created a slight bias towards Gurgaon in our results, due to us gaining more specific knowledge about said cluster. Based on the findings of the interviewees one can nevertheless assume that they have been relatively objective in their judgments. Secondary sources related to Bangalore has nevertheless been used more heavily to account for potential bias results.

Neither of us have experienced Bangalore nor Gurgaon for ourselves. Meaning, when comparing them we do not have any first-hand information or contextual knowledge. On one hand, by having no first-hand experience with either cluster, we did not start the research with a bias towards either one of them, that could have skewed our results. On the other hand, by not having had any first-hand experience of either cluster, there may have been nuances of the clusters that we have missed.

6.3 Contributions
Theoretic al contributions

Gap 1: Location Choices of Multinational Enterprises
Through this study, we have studied regional variations in India that are significant for the location choice of R&D investment, through which we have also contributed to improving the
understanding of how MNEs make their location choices. Existing literature has related to this suggested that a fruitful method for doing so could involve integrating insights from IB and EG literature. In an attempt to bridge the gap between IB and EG, a theoretical framework that integrates the impact of place, space and organizational attributes on location choice has thus been made. In this regard, EG scholars have previously failed to take into consideration the impact of firm heterogeneity, whilst IB scholars have failed to take into consideration the impact of space attributes. This attempt to better understanding location choices has shown to be fruitful. It can act as inspiration for future research to build on.

**Gap 2: Research vs. Development**

Whilst comparing Gurgaon and Bangalore, we have tried to identify which location is more suitable for research and development oriented R&D investments respectively. By applying our theoretical framework, we have analyzed our chosen location determinants (factor conditions, demand conditions, industry conditions, firm conditions, policy conditions and networks conditions) from both an exploration and an exploitation perspective. We have thereby found indications of which cluster is better suited for exploration and which cluster is better suited for exploitation activities. Therefore, our study contributes to the ongoing discussion by separating research and development as two different types of activities.

**Gap 3: India & Gap 4: Regional variations**

The aim of our study was to compare two R&D clusters in India, Bangalore and Gurgaon. By examining the regional variations between two locations in India, as Holtbrügge & Friedman (2015, p. 6) suggested that there may be major variations within India, our findings have contributed to the growing academic field of emerging markets, and in particular India. The findings show that there are similarities and differences between these two clusters. Thus, we have addressed Gap 3 by revealing indications of regional variations and diversity through our findings.

Following Gap 3, attention in our study has been given to the regional variations in India. As Kearney (2012, p. 162) puts it regarding emerging markets, there is a huge diversity within and between countries and that is the most interesting aspects with emerging markets. We have thus focused our study on the differences between two R&D clusters within India, in order to highlight the regional variations between said locations. Similar to Gap 3, our study contributes to the study by looking at an emerging market, in this case India, on a sub-national level.

**Practical contributions**

Our study covers the similarities and differences between Gurgaon and Bangalore, as well as goes over which cluster is preferred for research and development respectively. With the results of our study, we hope to have contributed to the knowledge of Gurgaon and Bangalore’s potential as possible locations for R&D investments by MNEs and other actors. It also provides some useful initial insights that can be used by local policy makers in Gurgaon and Bangalore for better understanding their strengths and weaknesses relative to each other. These strengths and weaknesses can be dealt with proactively for the purpose of making their respective regions more attractive for foreign R&D investors. Although the findings are more directly relevant for the policy makers in Gurgaon and Bangalore, one could also argue that policy makers in other regions can also find this thesis useful, as they can learn about why the other regions may be considered more attractive than their own. Alternatively, a realization about their own strengths can be gained and consequently be nurtured by them.
Societal and ethical contributions
The choice of topic for this thesis has positive societal and ethical contributions. By shedding light on emerging markets and India specifically, this thesis contributes to breaking down geographical boundaries and strengthening relationship across borders. It recognizes and highlights the important role of emerging markets, which otherwise often are underestimated. Although the company from which the interviewees are from is a western firm, almost all of the respondents are Indians who have participated in this study with a positive and encouraging attitude, thereby showing the strengthening of relationships across borders. The knowledge and findings gained through this thesis can furthermore be considered to have positive societal and ethical implications. The spreading of knowledge about different countries contributes to an openness amongst countries, as it helps gain a greater understanding of each other. On a more specific note, the findings can further have positive implications by spreading the perception of emerging markets as attractive locations for economic activities. This can possibly encourage more firms to invest in locations such as India, which in turn can have both social and economic benefits. It can for instance help generate more jobs opportunities for the local inhabitants, thereby creating sources of income for them. By also aiming to understand the regional variations and how they can become attractive to different firms and industries, this study further contributes with societal and ethical implications as such knowledge can as previously mentioned help local and national policy makers take action towards attracting foreign R&D investments which further can help stimulate social and economic developments.

6.4 Future Research
Our study has been conducted by interviewing employees from a telecom company based in Bangalore and Gurgaon. While our study aims to compare these clusters, our choice of respondents does affect the results of our study. Consequently, our results have been influenced by the telecom industry and thus holds a slight bias. By focusing on other industries, the subsequent result may or may not very well be different than that of this study. Research within another industry focus would allow for a larger understanding of the two clusters as a whole and give further richness to research on India.

With the results of our study, we have contributed with research on India on a sub-national level where we have looked at the regional variations between two R&D clusters in India, Gurgaon and Bangalore. One of our respondents (BLR-2) suggested to also study Chennai and Hyderabad, both being equally good from an IT perspective, and Chennai in particular since it has a balance of software, hardware and automobile industries. Therefore, a future study that compare Bangalore, Gurgaon and Chennai, or compare Bangalore, Gurgaon, Chennai and Hyderabad would give further insights and be ground for an interesting discussion regarding regional variations in India. It will also ensure the growth of studies on the sub-national level in India.

Furthermore, our study has attempted to combine organization, space and place in a theoretical framework. We would recommend other researchers to keep combining said factors when looking at different geographical regions as they can more or less be considered relevant aspects for the location choice of economic activities. They can for instance be used for studying regional variations in China. Related to the identified factors, these can further be explored from an ethical/social perspective in a more explicit manner. In today’s society where people are increasingly socially aware, one could assume that ethical aspects such as under which work conditions people work, whether governments are involved in corruption, whether demand is related to wasteful consumption etc. could possibly influence the location choice of economic...
activities. Whilst we have largely considered the availability of different factors, future research could consider the underlying ‘quality’ of the different factors, and their possible impact on location choices.

For future research, we would also suggest to conduct a quantitative study on regional similarities and differences between R&D clusters in India. Since we were after the experiences of employees in the clusters, the richness that a qualitative study can give, we found the qualitative approach to be more suited for us. We therefore believe complementing our findings with a quantitative approach, would give a broader context and more clearly provide an understanding about extent the clusters are similar or different. With our research, we have identified relevant variables from an R&D perspective that we believe would largely also work well with a quantitative approach.
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Appendix

Appendix 1: Letter of Request

Dear Sir/Madame,

We are two master students studying Business Development and Internationalization at Umeå School of Business and Economics in Sweden. Currently, we are working on our final master thesis and hope that ________ wants to be involved.

Our thesis is a comparative study of R&D clusters in India. We wish to explore differences and similarities between such regions as a response to: (1) the growing trend of western firms moving R&D activities to emerging markets, (2) the lack of research regarding regional variations within these markets and (3) the limited understanding of what determines companies’ location choices for their research and development investments respectively. Emerging markets are often generalized as if they were all the same, especially on a subnational level. We however argue that there are many subnational variations that are important to identify. By exploring similarities and differences between Indian R&D clusters, we aim to provide a better understanding of these settings. The purpose of this thesis is to subsequently encourage further research that explores such variations. We simultaneously hope to improve companies understanding of regional variations, so that appropriate choices of locations can be made for different types of R&D activities.

Given _____ long presences in India, we strongly believe that your company is a good fit for this study. We are more specifically interested in comparing two or three of the clusters where _______ has R&D activities, and thereby wish to interview people who work in mainly _______ and _______. The interviews will include questions about each person and what they do, before then addressing questions related to the cluster. It could for instance involve the availability of resources, if there are any dominating industries present and if you interact with other actors within the cluster. We are overall interested in hearing about the interviewees experiences, perceptions and local insights. Hopefully this can also be a useful learning opportunity for _______ as well, through awakening new thoughts and gaining new insights that can be useful for your operations.

Since we are currently in Umeå, the interviews will most likely be conducted over skype or telephone. Each one is expected to take around 45-60 minutes and will be anonymous. We can however adjust to your schedule and aim to shorten the time if necessary. We would lastly be glad to have the interviews sooner than latter given our time constraints, but will of course adjust to the interviewees schedule.

Thank you for your time and consideration. Please do not hesitate to ask if anything is unclear or if additional information is desired. Your contributions to this study would be highly valued and we look forward to hearing from you soon.

Kind regards,
Martina Sundqvist & Natsinet Selemun

Martina Sundqvist
[Email address]
[Phone number]
Master program: Business Development and Internationalization

Natsinet Selemun
[Email address]
[Phone number]
Master program: Business Development and Internationalization

Thesis supervisor
Zsuzsanna Vincze
[Email address]
INTERVIEW REQUEST FOR MASTERS THESIS

I would like to confirm that Martina Sundqvist and Natsinet Selemon are enrolled at Umeå University (Umeå, Sweden) and undertake their Master studies in the programs of Business Development and Internationalization. To fulfill the program requirements, they must write a Master thesis jointly.

Therefore, the students are currently in the process of composing their thesis on the topic “A Comparative Study of R&D Clusters in India”. As part of their research, they are required to do field work (e.g., interviews) in various organizations. The field work together with the theoretical part, is part of the requirements at our School. We encourage students to collaborate with organizations such as yours in order to obtain relevant knowledge in the field of their interest area through empirical research.

Martina and Natsinet are committed to use and save all data cautiously, ensuring the anonymity of the respondents and interviewees. The ethical issues related to this research are the same as in any business research. The respondents and interviewees will be informed of the purpose of the research and their anonymity will be protected.

I hereby request you to accord them the opportunity to carry out this research in your organization by offering them the necessary support to enable them to complete their thesis successfully.

In case of any further queries or clarifications on this matter, please do not hesitate to contact me.

Sincerely,

Zsuzsanna Vinceze, PhD
Associate Professor
Head of Entrepreneurship section

2018-04-03
Umeå
Appendix 3: Interview Guide

The interview will be conducted in a semi-structured manner, i.e. we will use the questions below as a guide but may add/skip questions depending on how the discussion evolves.

Introduction
- Topic and purpose of our study: A Comparative study of Bangalore and Gurgaon
- Interview in two parts: (1) learn more about you and (2) learn more about the clusters
- Reminding respondent about the anonymity
- Are you okay with us recording the interview?
- Do you have any questions before we proceed?

About the respondent
1) What is your position?
2) What type of R&D activities do you/your team conduct?
   o Is it geared towards research or development activities?
3) How long have you worked in Gurgaon?

Research vs Development
4) What is it about this cluster that makes it a good location for the activities you/your team conducts?
5) Is there anything about this cluster that makes it a "bad" location for your type of activities?

Factor Conditions

Human Capital
6) Do you experience that it is difficult/easy for the company to find suitable staff?
7) Do you know where the company usually hires from?
   o E.g. Newly graduates vs people already working in other companies?
   o E.g. Within/outside the cluster?
8) Do you experience that there is high/low employee mobility?
9) What type of knowledge/skills predominantly exist within the cluster?
10) What could you say about the general level of wages in this cluster?
11) How would you compare Gurgaon and Bangalore in terms of the availability and cost of human capital?

Universities, research institutes etc.
12) Are there any universities within the cluster that you are aware of?
   o Do you know if they specialize in any specific field?
   o Do you interact with them in any way?
   o If yes, for what purposes?
13) Are there any research institutions that you are aware of?
   o If yes, do they specialize in any certain areas?
   o Do you interact with them?
   o If yes, for what purposes?
14) How would you compare Gurgaon and Bangalore in terms of the availability of university and research centers?

Demand Conditions
15) Do you conduct R&D activities for serving any specific market?
   o Local, Indian, global and/or home market demand?
16) Do the demands and needs of the local consumers impact your work in any way?
17) How would you describe the consumers in the cluster?
18) How would you compare Gurgaon and Bangalore in terms of the demand conditions

Industry Conditions
19) To what extent do you use suppliers within/outside the cluster?
   o What type of suppliers do you have within the cluster?
20) Do you have any competitors that also are in this cluster?
   o Do you interact with them?
21) What other actors or industries would you say exist within this cluster?
   o Do you interact with any of them?
22) How would you compare Gurgaon and Bangalore in terms of the industry conditions?

**Global vs Local networks**
23) To what degree would you say that you interact with actors within vs outside the cluster?
   o Who are they?
   o Where are they? (India? The company’s home market? Global?)
   o For what purposes do you interact with them?
24) How would you compare Gurgaon and Bangalore in terms of their local and global network linkages?

**Firm Rivalry Conditions**
25) Would you say that there is a competitive atmosphere within the cluster?
26) Is collaboration amongst different actors within the cluster common?
27) How would you compare Gurgaon and Bangalore in regards to their firm rivalry conditions?

**Government**
28) Do local policy makers affect your work in any way?
   o Do you know if local policy makers provide any incentives for your company to stay within the cluster?
   o Do local policy makers create any challenges for you?
29) Are local and foreign firms generally treated similarly by local policymakers?
30) How would you compare Gurgaon and Bangalore in regards to the policy conditions?

**Wrap up questions**
31) How would you describe Gurgaon in three words?
32) What would you say are the main differences between Gurgaon and Bangalore?
33) Can we contact you via email if we have any follow up questions?