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Mapping Entrepreneurial Ecosystem: Identification of Major Drivers in Developed and Developing Countries

SUPERVISOR
Chiar.mo Prof.
Michele Modina

COORDINATRICE DEL CORSO DI DOTTORATO
Chiar.ma Prof.ssa
Francesca Di Virgilio

Francesca Di Virgilio

CANDIDATO
Muhammad Fayaz Khan
Matricola n. 167704

Muhammad Fayaz Khan

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Mapping Entrepreneurial Ecosystem: Identification of Major Drivers in Developed and Developing Countries

Muhammad Fayaz Khan

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Dedication

This research study is dedicated to my parents, siblings, wife and lovely daughter (Zobiya Fayaz) for their love and continual encouragement that helped me to achieve my dream.

I also dedicate this work to University of Molise, Campobasso, Italy for their financial and moral support.

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Abstract

Entrepreneurial ecosystems (EEs) are viewed as the source of economic growth, revitalization, and means of creating jobs, attracting human talent from other regions and bring innovation into a community. The concept of entrepreneurial ecosystems has been used as a framework, consists of attributes, elements, actors, pillars to explain entrepreneurial activities within regions and industrial sectors. Current work on EEs, however, focuses on documenting the list of elements of system, which means that rare investigation is made in examining the individual contribution of the drivers in the development of entrepreneurial ecosystem. Notwithstanding the usefulness of this approach, the concept is not developed yet, especially with regard to the measurement of the individual functionality of each driver in the development of entrepreneurial ecosystem in developing as well as in developed nations. To address this issue, the research study in hand deployed a mixed method approach, in two stages, to answer the research questions. The first stage was qualitative phase in which total 17 semi-structure interviews (9 in Pakistan and 8 in Italy) were conducted. The data generated from the first phase was not only used as an input for the development of survey instrument for the second quantitative phase but also resulted in one additional element, for instance, social media to the existing EE attributes. Based on extant literature and results of the qualitative phase, various hypotheses were developed to measure the individual effect of each attribute on EE development. At the quantitative stage, 309 and 167 useable questionnaires from entrepreneurs/SMEs' managers in the context of Khyber Pakhtunkhwa, Pakistan and Molise Region, Italy respectively were collected through drop and collect method to test the developed hypotheses. The theoretical model was tested by analyzing survey responses, using structural equation modelling (SEM). The measurement model shows a good fit with the data and good convergent, discriminate and composite reliability. The results of structure model of SEM analysis suggest that all hypotheses in the context of Italy and eight hypotheses in the context of Pakistan were supported. The results of this research study offer new insights for both academics and practitioners and add to the existing body of knowledge on EE attributes and the role of individual attribute in the development of entrepreneurial ecosystem in developing and developed contexts simultaneously. The study made some methodological as well as theoretical contributions as it is the first of this kind in Pakistani and Italian perspective.

Key words: entrepreneurial ecosystem development, entrepreneurial ecosystem drivers, Pakistan, Italy, developing countries, developed countries, SMEs

Table of contents

List of tables

List of figures

List of acronyms

AVE	Average Variance Extracted
CFA	Common Factor Analysis
CPEC	China-Pakistan Economic Corridor
CV	Convergent Validity
DOPU	Drop up Pick up
DV	Discriminant Validity
EE	Entrepreneurial Ecosystem
EED	Entrepreneurial Ecosystem Development
EEF	Exploratory Factor Analysis
EFCs	Entrepreneurship Framework Conditions
ESOs	Entrepreneurship Support Organizations
ESP	Economic Survey of Pakistan
EU	European Union
FBS	Federal Bureau of Statistics
FDI	Foreign Direct Investment
FIC	Finance / Investment Capital
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
HE	History of Entrepreneurship
HTMT	Heterotrait-Monotrait Ratio
KMO	Kaiser-Meyer-Olin
MA	Market Accessibility
MIP	Ministry of Industries and Production
MRM	Mentors and Role Model

N	Networking
NFI	Normed Fit Index
OECD	Organization for Economic and Cooperation Development
PCA	Principal Component Analysis
PG	Policy and Governance
PI	Physical Infrastructure
PID	Punjab Industries Department
PLS	Partial Least Square
R&D	Research and Development
R^2	Coefficient of Determination
SBP	State Bank of Pakistan
SEM	Structural Equation Modeling
SEZs	Special Economic Zones
SM	Social Media
SM	Social Media
SMEDA	Small & Medium Enterprises Development Authority
SMEs	Small Medium Enterprises
SPSS	Statistical Package for the Social Sciences
SRC	Supportive and Risk-taking Culture
SRMR	Standardized Root Mean Square Residual
SS	Support Services
U	University
WEF	World Economic Forum
WT	Worker Talent

Chapter 1
Introduction

1.1 Introduction

Across the world, entrepreneurship has been recognized as the engine of nation's economic growth and is viewed as the fundamental element of flourishing economy (Acs et al., 2008). Since the last decade of the 20th century, the domain of entrepreneurship has achieved new heights. According to Isenberg (2016) that in January 2016, the word was searched on Google ten million times. The influential work of Schumpeter (1934) gives recognition to the value of entrepreneurship in which he considered entrepreneurs as agents of creative destruction and emphasized their vital role in economic growth. Since 1934, extant research has been conducted in this field and policymakers have been working on to develop most suitable policies keeping in view the local conditions for the promotion of Small Medium Enterprises (SMEs) that results in entrepreneurship.

Stakeholders such as, policymakers, researchers and practitioners have agreed that entrepreneurship results in variety of economic, developmental and social benefits and developed a broad consensus about the importance of entrepreneurship (Ács et al., 2014; Blanchflower, 2000; Terjesen & Wang, 2013). As a result, many governments and development agencies have allocated considerable amounts of financial resources for financing and training entrepreneurs. This has been done with an aim to promote the entrepreneurial activity in various regions on the premises of the argument that all kinds of entrepreneurship will yield economic activity such as, GDP growth rate, employment growth and long-term productivity increases Isenberg (2010).

The central point of the early researchers in the domain of entrepreneurship was the personality traits of successful entrepreneurs (Van de Ven, 1993) with an aim to investigate the set of personal characteristics needed to be a successful entrepreneur. Extant literature in this domain has mostly been affiliated with the behaviors or characteristics of firms or individuals (Shane and Venkataraman 2000; Shane et al., 2009). This aspect of entrepreneurship is still the focus of much research, notwithstanding the long legacy of many disciplines such as, business research (Bahrarni & Evans, 1995; Paola Dubini, 1989), geography Ritsila (2010) and sociology Sorenson & Audia (2000) which have highlighted the importance of relationships or networking of entrepreneurs with their local social and economic environment.

In fact, several researchers have emphasized the need to comprehend entrepreneurship in broader contexts, such as their spatial, temporal, and social arenas (Autio et al., 2014; Spilling, 1996; Van de Ven, 1993; Zahra et al., 2014; Zahra & Wright, 2011). Up until now, no comprehensive approach for entrepreneurship has focused on all of its interconnected elements Alvedalen & Boschma (2017). Regarding this matter, recent research has revealed that scholars have developed their consensus that the systemic nature of entrepreneurial activity is still underdeveloped (Ács et al., 2014; Gustafsson & Autio, 2011; Qian et al., 2012).

In addition, few studies have approached entrepreneurship from a truly systemic and interdisciplinary perspective (Ács et al., 2014; Qian et al., 2012). As a result, a new perspective that focuses on the "systematic view of entrepreneurship" has recently came into existence, known as entrepreneurial ecosystem (EE). This latest concept considers entrepreneurship as interdependent and interactive phenomenon Motoyama & Knowlton (2016). This systemic approach to entrepreneurship has attracted academics, scholars and policy makers' attention to a larger extent (Acs, Stam, Audretsch, & Connor, 2017; Brown & Mason, 2017; O' Connor et al., 2018; Isenberg, 2016; Spigel & Harrison, 2018; Stam, 2018; Theodoraki et al., 2022; Velt et al., 2020).

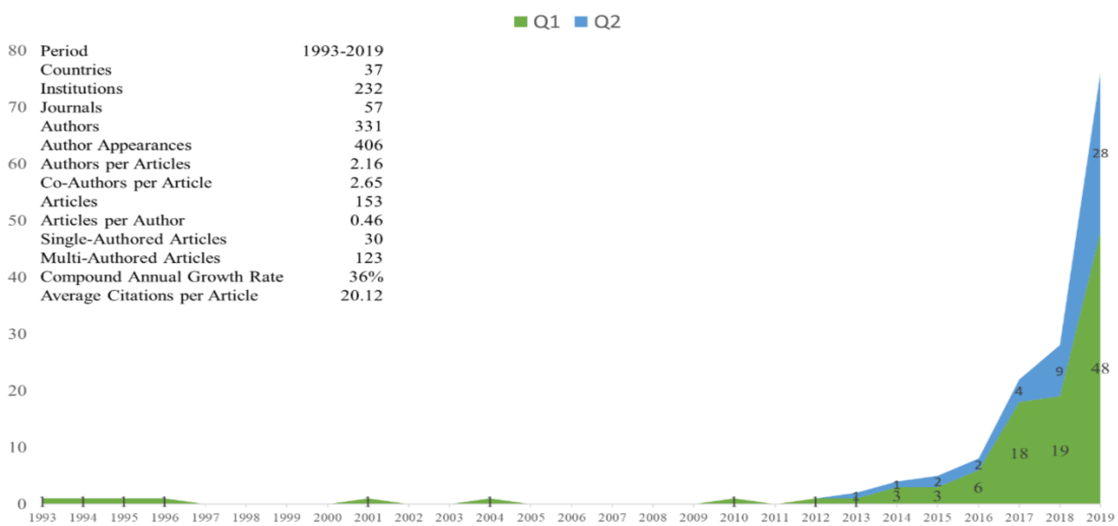
1.2 Entrepreneurial ecosystem (EE)

The systematic approach to entrepreneurship is relatively in infant stage, yet the concept has started to attract the attention of academics, policy makers (Isenberg, 2010; Mason & Brown, 2013) and practitioners Autio et al., (2018) globally and across the various disciplines including strategy, management, economic geography, entrepreneurship and international business Velt et al., (2020). An increasing interest is noted in the EE domain in developed nations including United States, United Kingdom, Germany; developing nations such as South Africa, Bangladesh and also, in countries involved in the European debt crisis (Greece, Italy, and Spain) (Theodoraki et al., 2022; Velt et al., 2020).

EE is a global phenomenon and researchers across the globe have been studying it from different perspectives. According to Velt et al., (2020) that 37 nations have conducted EE research, leading to the publication of 153 articles and a total of 236 affiliations[1]. The United States (US) (72 articles), the United Kingdom (UK) (36) and Germany (16), which together account for more than half of the associated publications, are by far the most productive nations. The research agenda is dominated by the 10 most productive nations, which account for over 78% (184) of the articles overall.

Moreover, the EE concept has established as the most recent trend in the domain of entrepreneurship (Brown & Mason, 2017; Stam, 2018; Theodoraki et al., 2022; Velt et al., 2020). The following figure 1.1 shows the exponential growth in the popularity of research on EE in recent years.

Figure 1.1 The Trend of publications based on Entrepreneurial Ecosystem (1993-2019)



Source: Adopted from (Velt et al., 2020)

Velt et al., (2020) analysed a sample of 153 articles on EE (Q1=106, Q2=47), published across 57 (Q1=34, Q2=23) journals during the period 1993–2019 (Figure 1.1). The results show that EE research has been conducted in 232 institutions and 37 countries. While the trends show only eight articles published between 1993 and 2012, the EE phenomenon has gained more traction in mainstream journals after 2013. Of the analysed studies, 90.8% (139) have been published in the last five years, with 2019 accounting for 49.7% (76) of the total.

[1] Authors can be affiliated with multiple institutions in different countries, while co-authoring with others.

Despite of EE enormous popularity among the academics, policy makers, and practitioners across the globe, a widely shared definition is yet to be explored. However, the term entrepreneurial ecosystem can be explained by its two components. The first component, "entrepreneurial," refers to entrepreneurship, which means identification, evaluation and exploitation of opportunities of creating new goods and services (Shane & Venkataraman, 2000). In general, entrepreneurship involves the process by which individuals exploit opportunities for innovation Schumpeter (1934). The EE concept often narrows this kind of entrepreneurial activity to high growth start-ups, asserting that this type of entrepreneurship leads to productivity growth, innovation and job creation Mason & Brown (2013). Empirically, this assumption seems too exclusive: innovative start-ups or entrepreneurial employees can also be types of productive entrepreneurship Baumol (1990).

Ecosystem is the second component of the term EE. In the EEs' context, it is obvious that the biological interpretation of this concept, which places the interaction of living organisms with their physical environment at its core, should not be taken too literally. The EE concept emphasizes that entrepreneurship occurs within a network of interconnected actors. More specifically, the role of social context in facilitating or hindering entrepreneurship is the central point of discussion in the EE literature, and in this regard is closely connected to other recent system of entrepreneurship approaches (Ács et al., 2014; Levie et al., 2014; Sternberg, 2007).

Furthermore, when talking about the EE origin, it has its roots in strategy and regional development literature Acs et al., (2017). Both literatures have origins in ecological system theory, emphasizing on the interconnectedness of the actors in a region to produce new value. The regional development literature has long lasting tradition of examining the (eco)systems in order to elaborate the differential social and economic performance of a region. It includes similar concepts like industrial districts, regional industrial clusters and regional innovation system Terjesen (2017). These concepts have developed similar consensus over regional performance whether it would be innovativeness as an output or productivity and employment as an outcome.

The industrial district concept focuses on the division of labor at local level with an industry Marshall (1920). Also, it emphasizes on the interactions between a population of firms and a community of people in a socio-territorial entity in order to be successful internationally. The cluster concept emphasizes on geographic concentrations of interconnected firms, service providers, suppliers, companies in related industries, and associated institutions in specific fields that compete as well as cooperate Porter (1998). Regional Innovation Systems focus on the networks and institutions that link knowledge producing hubs like universities and public research centers and labs with innovative firms with in territory. These linkages result in the knowledge spill over between different organizations and institutions, which further enhance region's innovativeness Cooke et al., (1997).

As far as the strategy literature is concerned, it views business ecosystem as a form of economic coordination in which the ability of a firm to create value critically depends on different groups of actors that produce complementary products (Adner & Kapoor, 2010; Iansiti and Levien 2004; Williamson & De Meyer, 2016). Business ecosystem refers to the composition of partners that need to be aligned to produce value proposition in the market place Adner (2016). It is evident from the previous studies that vital strategic and structural factors influence the firm's ability to capture a large share of the overall value created by the ecosystem when organizing economic activity among ecosystem partners (Adner & Kapoor, 2010; Jacobides et al., 2006). To create the value for customers, alignment of business partners is central. According to Adner (2016) that strategy in ecosystem must take into consideration the development of differentiated value proposition to attract both the end users and important partners. These actors could come from multiple stakeholder organizations such as, universities, competitors, consumers, complementors, customers, and component suppliers. To manage the interdependences and interactions among the stakeholders, firms play a vital role by making the perception of current and prospective participants Autio & Thomas (2018).

Despite of EE approach's links with other economic regional development approaches, it contradicts with these established concepts because of the fact that entrepreneur rather than enterprise, is the focal point in the system. The EE approach therefore starts with the entrepreneurial individual rather than the company, but also highlights the significance of the entrepreneurship context. EE approach not only sees entrepreneurship as an outcome of the system, but also considers the importance of entrepreneurs as central players (leaders) in the creation of the system and in keeping the system sustainable.

In comparison to earlier policy approaches, this "privatization" of entrepreneurship policy reduces the role of government; yet, this does not change the reality that this function is still important, although as a "feeder" rather than a "leader" of the ecosystem Feld (2012). Entrepreneurs that have a long-term commitment to the ecosystem are often best positioned to identify the opportunities and barriers and to deal with them in collaboration with the ecosystem's "feeders" namely, professional service providers and the financial infrastructure etc. The government can act as a major "feeder," such as by changing the rules and regulations. Market and system failures are not always justifications for government intervention; even in these situations, entrepreneurs might discover possibilities, for instance by removing information asymmetry and organizing group efforts to produce public goods.

Recent popular literature on EE is more focused on policy-makers and entrepreneurs as essential ecosystem stakeholders than it is on academic audiences. It addresses practitioners directly, yet the empirical foundations and causal rigor are both limited. The contemporary EE literature offers several lists of elements that are thought to be vital for an EE's development. Naturally, entrepreneurs who are visible and connected are considered to be the heart of effective EE, however, apart from entrepreneurs, EEs have certain domains Isenberg (2011), components Stam (2015), factors Suresh & Ramraj (2012), elements and attributes Spigel (2017) which either facilitate or hinders entrepreneurial activity in a region.

However, it is unknown that how much these factors influence the entrepreneurship activities in a given context. For this reason, the scholars have emphasized the need to empirically test the effect of individual and interdependent elements of EE on level of entrepreneurial activity in a region (Alvedalen & Boschma, 2017; Spigel & Harrison, 2018). The main aim of this study is to identify the relative importance of each factor and to add additional contextual factors in two different contexts simultaneously such as, developing context, Pakistan and developed context, Italy.

1.3 Problem statement

The rise in entrepreneurship and proliferation of new ventures start-ups on global scale have generated a pressing need to explore and comprehend the factors that support the success of these ventures. Entrepreneurial Ecosystems (EEs) have emerged as a focal point for policymakers, academics, and practitioners, being recognized as catalysts for economic growth, revitalization, job creation, talent attraction, and innovation. These ecosystems have become instrumental in fostering entrepreneurial activities, both at the local and international levels. This aspect of the EE has garnered significant attention in the recent years, with researchers approaching EE from various perspectives including structural (Cohen, 2006; Isenberg, 2010; Neck et al., 2004; Spigel, 2017); systematic (Cohen, 2006a; Mack & Mayer, 2016; Stam, 2015); spatial (Mason & Brown, 2014; Stam, 2015); evolutionary (Mack & Mayer, 2016; Spigel & Harrison, 2018); and international lenses Theodoraki et al., (2022). These perspectives have enriched our understanding of the EE concept but have left a critical gap unaddressed. While the existing body of EE research has primarily focused on enumerating the elements of entrepreneurial system, it has not comprehensively explored measurement of the individual functionality of each driver / attribute in the development of EE, both in developing and developed contexts. Due to lack of knowledge of the contextual factors and individual role of each EE attribute in the EE development, EE stakeholders, for instance, EE builders, entrepreneurship support organizations, government and SMEs policymakers failed to devise effective policies for the EE development.

To address this gap in knowledge, this research aims to develop and validate a comprehensive measurement framework that assess the individual functionality of each EE attribute in the development of entrepreneurial ecosystem. These attributes encompass supportive culture, histories of entrepreneurship, worker talent, investment capital, network, mentors and role models, policy and governance, universities, support services, physical infrastructure, social media, and open markets within the entrepreneurial ecosystem context.

1.4 Significance of the research study

This research study takes a mixed-method approach and will simultaneously investigate the functionality of EE attributes in two contrasting settings: a developing country, Pakistan, and a developed country, Italy. This dual-pronged investigation serves twofold purpose: firstly, to enrich the academic understanding of EE attributes by examining their operations in diverse economic and cultural environments, and secondly, to provide practical insights that can be instrumental for policymakers, aspiring entrepreneurs, and ecosystem builders in both regions. Ultimately, this research aims to contribute to a deeper understanding of the EE concept, facilitating the creation of more effective policies and strategies that can catalyze entrepreneurial activities and bolster entrepreneurial ecosystem to promote economic development in these different regions.

Furthermore, this analysis in two different contexts not only contributes to the body of knowledge in entrepreneurship but also has the potential to guide decision-makers and stakeholders towards the design and implementation of context-specific interventions that can harness the full potential of entrepreneurial ecosystem.

1.5 Aims of the Study

As discussed earlier in this chapter that entrepreneurial activity is influenced by contextual factors. Every region has specific EE components Isenberg (2010), which are not to be considered as universal. According to Isenberg (2010) that it is not possible to replicate a new Silicon Valley in another community by simply replicating the same features of its entrepreneurship ecosystem rather to identify benchmark components to be analyzed and developed according to each country's specific reality.

In this regard, the primary objective of the current study is to delve into the contextual factors and ascertain the relative significance of each EE element / driver in the advancement of entrepreneurial ecosystems in both developing and developed countries, concurrently. The framework utilized for identifying these elements is derived from Spigel (2017), which outlines ten distinct attributes of an entrepreneurial ecosystem. In addition to these attributes, this study takes into account the contextual factors that either facilitate or impede entrepreneurial activity in both contexts. To gain a deeper understanding of these context-specific factors, a qualitative research approach will be employed.

Furthermore, this study has a secondary aim, which is to construct a measurement scale or instrument. This instrument will gauge the individual contributions of each of the EE attributes to the development of entrepreneurial ecosystems within both developing and developed contexts. This comprehensive approach seeks to shed light on the complex interplay of contextual and ecosystem-specific factors that shape entrepreneurial activity in diverse regions.

1.6 Research Questions of the Study

i. What is the effect of different cultural attributes (supportive and risk-taking culture, history of entrepreneurship) on EE development in the context of Pakistan and Italy?

ii. What is the effect of social attributes (worker talent, investment capital, networks, mentors and role models) on EE development in the context of Pakistan and Italy?

iii. What is the effect of material attributes (policy and governance, universities, support services, physical infrastructure, open markets) on EE development in the context of Pakistan and Italy?

iv. What is the effect of social media on EE development in the context of Pakistan?

v. What is the effect of social media on EE development in the context of Italy?

1.7 Context of the study

1.7.1 Pakistan context

Pakistan is situated in the south west of Asia, sharing its borders with Iran, India, China, Afghanistan, and the Arabian Sea, and squeezed between central Asia and Indian subcontinent. Pakistan is the 6th most populous country of the world with 223 million people and incorporates 796,095 square kilometers, ESP (2014-15). Pakistan is a country with enormous potential for development despite its low income Ayyagari et al., (2011), the nation's abundant natural resources, strategic location, and improving business environment make it a country with great potential for development. Agriculture contributes 20.9% to total GDP and accounts for 43.5% of the total employment, while the industrial sector accounts for 20.30% of the GDP ESP (2014-15). Pakistan main industries include; cotton, textiles, steel, electrical goods, sports goods, cement and fertilizers. Pakistan mainly exports rice, leather items, fruits, textile and cotton goods, and handicrafts. Furthermore, Lodhi (2011) notes a number of attributes of the economy of Pakistan as: "Pakistan has a significant industrial base, an elaborate infrastructure of roads and communication links, a modern banking system, a large domestic market and a thriving informal economy, pool of professionals and technically trained people, a hardworking labour force, a growing middle class and an enterprising business community."

However, despite of these staggering features of its economy, Pakistan has faced some major economic problems in the last two decades. This is partly due to Pakistan's involvement in the "War on Terror", the credit crunch and increasing oil prices. Since joining the war on terror in

September 2001, Pakistan has been facing a lot of challenges. The security situation of the country has become worst in the last couple of decades due to which Government of Pakistan had to start several operations within the country to fight its own people to eradicate terrorism; one of the major causes of socioeconomic instability in the country. Terrorist activities in Pakistan has negatively affected almost all economic fronts such as, industrial, agricultural, foreign, commercial and service industries. The terrified situation in the country has diverted the attention of foreign investors to other safe zones in the region that resulted in low foreign direct investment Gul et al., (2010). According to Hyder et al., (2015) that terrorist incident has negative relationship with the per capita GDP growth i.e. 1 % increase in terrorist activity results in decreasing the per capita GDP growth to 0.39 %.

Furthermore, the economy of Pakistan has historically observed erratic patterns, with even boom and bust cycles making it difficult to achieve inclusive and long-term growth. Long-standing structural issues such as, loss-making State-Owned Enterprises, weak external position due to lack of sufficient export capacity, low foreign direct investment (FDI), under-reformed energy sector and low savings and investments and other factors such as, dispersal of industries across country, lack of modern technology, high business cost, brain drain caused unsustainable economic growth.

In the light of these difficulties, Government of Pakistan at different phases of time remained focused on an economic vision of getting sustainable economic growth through bringing reforms to enhance efficiency, reduce cost of doing business, rethink and improve regulatory framework, increase productivity and investment. Moreover, Pakistan has already made a number of tangible steps in order to reach the standard annual growth rate, realize the full potential of its natural and human resources, enhance its manufacturing and agricultural sectors, and, overall, rise as a solid regional economy.

In this regard, the 2015 inauguration of the historic China-Pakistan Economic Corridor (CPEC), a project of coordination and cooperation between the two countries, has become a symbol for fast industrial development and dissemination. Thus, under the mega project of CPEC, Pakistan aims to establish productive industries to initiate a new era of industrialization. This includes diversified sectors such as, telecom, knowledge-based manufacturing, high-end textiles, sea products, engineering, and sophisticated fruits and vegetables storage facilities jointly or separately with Chinese companies to be based in Special Economic Zones (SEZs). SEZs are considered as one of the forms of entrepreneurial ecosystem Pasha (2018) that are now evolving and providing opportunities for global clients to access and diffuse new industries to local or global markets.

Vibrant entrepreneurial ecosystems increase competitive advantage of a region by strengthening local entrepreneurial capacity, which then spurs economic development through enhancing employment opportunities and economic diversity Rego (2016). However, vibrancy of entrepreneurial ecosystem depends upon certain domains Isenberg, (2011), elements Stam, (2015), and attributes Spigel (2017) present in a context and without knowing the significance of each element / component / domain / attribute of EE leads to the formulation of inefficient and irrelevant policies that further hinders the development or sustainability of EE.

1.7.2 Italy Context

Italy is located in Southern Europe and is bordered by France to the west, Switzerland and Austria to the north, Slovenia and the Adriatic Sea to the east, and the Mediterranean Sea to the south. Italy is the 23rd most populous country of the world with 60.4 million people and incorporates 301,340 square kilometers. Italy's economy is the ninth largest in the world and the third largest in the European Union, after Germany and France (https://tradingeconomics.com/italy/gdp-growth). The country has diverse economy, with a range of industries contributing to its GDP, including manufacturing, tourism, agriculture, services, energy, and construction. While Italy faces several economic challenges, including a high level of public debt, the country has a strong entrepreneurial spirit and a well-educated workforce, which helps to support economic growth and development.

In fact, although Italy performs very well in SMEs innovation and protects itself well in the areas of intellectual assets and attractiveness of the research system (where it is significantly in line with the EU average), for the rest of the performance indicators it still shows the structural weaknesses that have been widely known for years in the research and innovation system (Hollanders, 2020; Hollanders et al., 2012; 2014; 2016; 2019). Indeed, Italy is lagging behind in terms of public expenditure in research and development (R&D) and relative private investments, in the number of companies collaborating with other public and private partners, in the number of new doctorate students, and in the rate of private co-financing for public research activities. Furthermore, the tertiary educational levels among the population are incredibly low, with only 25.3% of 25- to 34-year-old having completed university, placing Italy only above Romania in the list Hollanders

(2020).

Additionally, the European Union (EU) has set the development of innovation ecosystems as pillars for the last (2014-2020) and the present (2021-2027) programming periods. Nevertheless, as reported in the EU's Regional Innovation Scoreboard (Hollanders et al., 2012; 2014; 2016; 2019; 2017), despite EU's efforts in building a solid ground for innovation development, some countries have not improved their innovation performance over time, compared to the other member states. Among those, the case of Italy is particularly significant: in spite of being one of the major economies in the EU, it is still lagging behind other large European economies in terms of innovation and growth rates, and it is still a 'moderate' innovator.

In order to deal with these issues faced by Pakistan and Italy, the innovation ecosystem and entrepreneurial ecosystem constructs emerge as a suitable framework to give relevance to the role of regional actors in this regard, and to help understand how the relationships among ecosystem actors at the regional and national level may affect the overall performance (Adner, 2006; Autio & Thomas, 2014; Brown & Mason, 2017; Carayannis & Campbell, 2009a; Gomes et al., 2018; Granstrand & Holgersson, 2020). As a matter of fact, such ecosystems aim at creating value Gomes et al., (2018), enabling innovation and technology development Jackson (2012), and developing an innovative culture and cooperation at the regional level Carayannis & Campbell (2009), and their success relies on the quality of the relations, the quality of the actors and the artifacts, and the quality of the institutions that characterize a region or a nation. However, since the composition of these attributes may vary among countries and regions, understanding how to reach these goals is only possible with an in-depth analysis of the quality of such attributes and, more significantly, relative importance of individual attribute in the development of ecosystems.

Although the literature on EE has advanced over time both on the theoretical and the empirical sides, it still lacks empirical evidence on specific contexts (especially developing countries) and individual functionality of each EE element thus leaving a gap in the understanding of how to create actor-specific policies to foster EE development in a defined region or nation, as in the case of Italy and Pakistan. The research in hand deploy the Spigel (2017) framework in two different contexts (developed and developing) simultaneously to explore the relative importance of the individual functionality of each attribute in EE development. As earlier said that this study gives high importance to entrepreneurs who are considered as the leaders of EE, their feedback regarding the EE phenomenon would be most relevant. Therefore, the current study intends to target the SMEs for quantitative data collection in both contexts.

1.8 SME Sector

In both low-income and high-income nations across the globe, a large amount of study has been conducted to evaluate the crucial role that SMEs play in fostering economic growth, modernization, job potential, income production, and scientific advancement Robu (2013). Whether we talk about the developing or developed countries, in fact, SMEs are considered as backbone of any economy. The primary justification for this is that, despite the difficulty in obtaining current statistics, SMEs account for 95% of businesses globally and contributing about 60% to world private sector employment (Ayyagari et al., 2011; Robu, 2013). The role of SMEs is not only vital in promoting competitiveness but also in the introduction of new and innovative products to the market. In this regard, it is accurate to claim that a nation's ability to foster an environment favorable to the growth of SMEs greatly influences the level of economic development and performance of its economy. In the end, this will lead to the creation of high-quality goods and services at low cost. SMEs are important because of their adaptability and innovativeness, which enable them to quickly adapt to market changes, enhancing regional competitiveness and fostering future economic growth Bhutta et al., (2008). Even though SMEs are regarded as the foundation of a national economy, many of these enterprises have only succeeded in expanding to a modest or medium size, at most, from their micro enterprise stage Kayanula & Quartey (2000). Due to the challenges of absorbing high fixed costs, the lack of scale and scope economies in key factors of production, the high unit costs, and the poor cash flow, SMEs are faced with a number of constraints (Rammer & Schmiele, 2008; Rothwell, 1991). Because of their poor credit standing, SMEs find it difficult to obtain financing, which makes it more likely that they will collapse in crunch times De Maeseneire & Claeys (2012).

The late 1970s and early 1980s observed a rise in the innovativeness and adaptability of SMEs. The goal was to outperform large firms in terms of efficiency and cost reduction. On a less positive side, SMEs are stigmatized as being a precarious financial entity that frequently fails. As SMEs frequently fail in their second year, they run the risk of being bankrupted at the very infant stage.

Defining an SME (Small & Medium Enterprises) is crucial in this research as it helps to determine the population frame from which research sample is drawn. However, to define SME is a difficult task regardless of its significant importance for the world economic development. The consensus on the SME definition is not yet developed in the literature. This is due to the fact that the word "SME" encompasses a wide range of components and that SMEs operate and provide services to a country's diversified socioeconomic and market needs Upadhyay (2007). Thus, practically every country has its own definition of SMEs; even within same country, different industries may have their own definitions. However, size of employees and annual revenue are considered to be the most common criteria in all the definitions of SMEs across the globe (see table 1.1). Consequently, in order to meet local and national needs, a mysterious array of dissimilar definitions of SMEs have been proposed ElGohary (2010). The official definitions of SMEs in some countries are summarized in the following table 1.1.

Table 1.1 Small & Medium Enterprises (SMEs)'s Definitions across the globe

Country	Size	Number of employees	Other criteria
European Union	Small	Employees >10 and < 50	Turnover: less than 10 million Euro OR balance sheet total less than 10 million Euro
	Medium	Employees > 50 and < 250	Turnover: less than 50 million Euro OR balance sheet total less than 43 million Euro
Australia	Small	Services oriented: < 20 employees Manufacturing oriented: < 100 employees	No
	Medium	Services oriented: 20-499 employees Production oriented: 100-499 employees	No
Canada	Small	Services oriented: < 50 employees Production oriented: Less than 100 employees	Services and Production: < CAD$ 5 million in sales.
	Medium	Services oriented: Between 20-500 employees	Services and Production: Sales between CAD$ 5-20 million.

		Production oriented: Between100-500 employees	
Malaysia	Small	No. of employees: less than 50	Turnover: less than RM 10 million
	Medium	No. of employees: less than 150	Turnover: less than RM 25 million
Indonesia	Small	No. of employees: Between 5 to 19	Annual turnover: less than Rp 1 billion Assets: less than Rp 200 million
	Medium	No. of employees: Between 20 to 99	Annual turnover: greater than Rp 1 billion Assets: less than Rp 10 billion
United States	Small & Medium	No. of Employees: less than 500	Annual Sales: less than US$ 5 million

Source: Researcher's own elaboration

In Pakistan, the situation is same. Different government institutions and organizations for instance, Federal Bureau of Statistics (FBS), Small & Medium Enterprises Development Authority (SMEDA), State Bank of Pakistan (SBP) and Punjab Industries Department (PID) do not have consensus over SME's definition and use different definitions. According to Kureshi et al., (2010) that there is no uniform SME definition in Pakistan and all the available definitions rest on the objectivity and suitability of the study. While there is no accepted standard SME definition in Pakistan, this leads to complexity and difficulty for researchers and practitioners to figure out a target population and collect data.

In order to carry out this study, the researcher needs to follow a comprehensive SME definition from Pakistani perspective to help in targeting appropriate population. In this context, the study in hand adopts the SMEDA's definition of SME which is currently operational and executed in Pakistan. SMEDA is an independent body working under the supervision of the Ministry of Industries and Production (MIP) aiming to support and develop the SME sector in Pakistan. Furthermore, SMEDA is the first official authority in Pakistan that particularly deals with SMEs. SMEDA define SME in Pakistan on basis of dual criteria as mentioned above: 1) Size of employees and 2) annual sales. While this definition benefits the SMEs sector in their legal procedures, it also supports the researchers and practitioners in the identification of a valid and reliable population frame for their research studies. The following table 1.2 shows the definition proposed by SMEDA which is adopted in this study.

Size	Number of employees	Sales (Annual) (Rs.)
Small	Greater than 9 & less than 50	Less than 100 million
Medium	Greater than 50 & less than 249	100 million to Rs. 300 million

In case of Italy, the researcher used the following criteria of SMEs.

Size	Number of employees	Sales (Annual) (Euro)
Small	Employees >10 and < 50	Turnover: less than 10 million Euro OR balance sheet total less than 10 million Euro
Medium	Employees > 50 and < 250	Turnover: less than 50 million Euro OR balance sheet total less than 43 million Euro

1.9 Research methodology

The research in hand adopted a post positivism research philosophy through the use of semi-structure interviews and questionnaire survey. In the first phase of research, semi-structured interviews were conducted to get better insights about the EE drivers and the roles they play in EE development in Pakistan as well as Italy context. The researcher also generated relevant items from the semi-structure interviews for the questionnaire survey, which was accompanied by extant literature reading regarding EE elements, components, and attributes. Meanwhile, in this phase of the research, the researcher developed and validated the questionnaire (survey instrument) which was later on used for quantitative data in the second phase of the study. Afterwards, the quantitative data was used to investigate the impact of each EE attribute Spigel (2017) on the development of EE in Pakistan and Italy. In order to purify and validate the scales used in this study, the researcher used Cronbach alpha, item-to-total correlation and exploratory factor analysis (EFA). A further validation of the scales was done through confirmatory factor analysis (CFA) in the measurement model of structural equation modelling (SEM). Later on, structural model of SME analysis was used to find the relationship between different constructs of the research to test hypothesis.

1.10 Structure of thesis

This research study consists of six chapters. First chapter of the study provides a brief overview of the background of the research. This chapter also presents the aims and objectives of the research in hand followed by brief discussion on the importance of SME sector and both contexts of the study. Alongside this chapter also serves as a road-map to guide the readers through the following chapters.

Chapter 2 Literature review

The second chapter 2 provides a review of a broad range of relevant literature regarding elements / components / attributes of EE. The chapter starts with an introduction to the EE concept and its two components. Following which, a detailed review of relevant definitions of EE, theoretical development of EE approach, synthesis of the EE concept, EE drivers and hypothesis development.

Chapter 3: Research Methodology

The third chapter provides information regarding the philosophical stance and approach adopted by the researcher in this study. This is followed by a discussion on the research methodology and methods and provides a brief review of the literature regarding research methodology. This shapes the mixed methods research approach adopted in this study. The process of developing the research instrument to use in this study is also reported. Finally, an account that describes the research sample, techniques used to prepare data for analysis, scales purification process, and data analysis technique used in this study is provided.

Chapter 4: Exploratory Phase of the current study

This chapter discusses the exploratory phase of this research study which focuses on the EE attributes in two different contexts for instance, Pakistan and Italy. This chapter outlines the results from the analysis of data generated from the semi-structured interviews, and, following these results; an additional element for instance, social media to EE elements in the contexts of Pakistan and Italy is identified.

Chapter 5: Data analysis and results

This chapter summarizes the key findings of the study. It begins with an overview of participating SMEs and individual characteristics of the respondents in the context of Pakistan and Italy. The subsequent sections explain the exploratory factor analysis, structural equation modeling analysis including measurement model (reliability and validity) and structural model (hypothesis testing).

Chapter 6: Discussions

The final chapter aims to conclude the efforts made by this research study by presenting discussions of the main findings. In this regard, section 6.2 elaborates the main findings of this study which are based on the effects that EE attributes have on the EE development in two different contexts. In section 6.3, both theoretical and practical contributions of the study were discussed. Afterward, in section 6.4, the research recommendations were presented. Lastly, in section 6.5, the limitations and future research avenues were discussed.

CHAPTER 2

Literature Review on Entrepreneurial Ecosystem and Elements of Entrepreneurial Ecosystem

The concept of entrepreneurial ecosystems has gained considerable attention globally (Theodoraki et al., 2022; Velt et al., 2020) among academics Isenberg (2010), policymakers Isenberg (2010), and practitioners (Autio et al., 2018) over the past decade (Ács et al., 2014; Alvedalen & Boschma, 2017; Audretsch et al., 2017; Auerswald, 2015; Autio et al., 2018; Isenberg, 2011; Mack & Mayer, 2016; Motoyama & Knowlton, 2016; Spigel, 2016; Stam, 2015) across various disciplines including management, strategy, economic geography, entrepreneurship Velt et al., (2020). Notwithstanding, the EE concept popularity in the last couple of decades, it mostly remains atheoretical, static, and broad Theodoraki et al., (2022).

To understand the EE concept requires a clear and universally accepted understanding of its two component parts, namely, 'entrepreneurial' and 'ecosystem' as well as their combination. Entrepreneurial refers to the process of identification and selection of business opportunities in order to pursue business creation dreams Stam (2015). Generally formulated, entrepreneurship includes the process in which entrepreneurs (individuals) explore opportunities and secure benefits by developing and selling innovative products Isenberg (2010).

More recently, the EE literature has narrowed down this entrepreneurship to high growth entrepreneurial firms and high-tech start-ups Napier & Hansen (2011) with a claim that this kind of entrepreneurship results in enhanced innovation, productivity and growth outcomes (Mason & Brown, 2014; Stam, 2015). While some might signal reservations about this narrowed focus as too exclusive, the recent literature on EEs has specifically focused on this aspect with self-employment no longer used as an indicator of entrepreneurial activity Henrekson & Sanandaji (2013).

Ecosystem is an analogy from a biological context. A system consists of all living organisms (biotic factors) in conjunction with physical environment (abiotic factors) and both factors function together as a unit Isenberg (2016). Tansley (1935) for the first time has coined the term "ecosystem" and since become a fundamental concept in ecology and environmental science. An ecosystem is a community of living and non-living things that interact with each other within a particular environment including plants, animals, microorganisms, soil, rocks, minerals, water sources, and the local atmosphere. All of these components of an ecosystem are interconnected and interdependent, and changes to any one component can have a ripple effect on the entire system.

This biological analogy of ecosystem has employed by several researchers in business and management filed. Moore (1993) has introduced the concept of ecosystem in management for the first time and presented the term "business ecosystem", emphasizing that companies must feel part of an inter-sectoral ecosystem in order to succeed in the modern competitive environment. Similar to natural ecosystems, business ecosystems are made up of diverse actors that interact with each other, but in this case, the interactions are based on economic and market relationships. Over time, these interactions can lead to the emergence of a more structured system of elements, as actors within the ecosystem develop specialized roles and relationships that enable them to better collaborate and compete.

According to Moore, similar to successful species spring from the natural resources for instance, sunlight, water, and soil nutrients, business ecosystems condense out of the original swirl of capital, customer interest, and talent generated by a new innovation (Moore, 1993). In other words, a business ecosystem is a network of interconnected organizations that are likely to operate around a focal firm or platform (Clarysse et al., 2014; Iansiti and Levien 2004; Teece, 2007). Parallel to this, Spilling (1996) highlighted the "entrepreneurial system," which he defined as the actors, roles, and environmental elements that interact to influence a region's entrepreneurial performance.

Iansiti and Levien (2004) extended Moore's work by highlighting that each actor in a business ecosystem has a unique role and set of abilities that contribute to the overall health and success of the ecosystem. Cohen (2006) introduction of the entrepreneurial ecosystem concept is based on this ecosystem, however, focused specifically on the role of entrepreneurship in driving economic growth and development.

The recent popularity in this regard has been driven by management and business works by Isenberg (2010) and Feld (2012) and has become the centre of attention in entrepreneurship field. Despite of the EE concept popularity in the last couple of decades, no consensus has yet been developed among the EE researchers on the definition see table (1.1), however, agreed upon the notion that entrepreneurship takes place in a community of interdependent actors who either support or hinder the entrepreneurial activity. The role of context in enabling or constraining entrepreneurship and the interdependencies between actors within system is the central point of the EE literature Stam (2015).

2.1 Entrepreneurial ecosystem definitions

As discussed in the previous section that the ecosystem concept has attracted the attention of scholars, researchers, practitioners in the field of entrepreneurship. Researchers in EE domain of entrepreneurship consider EE as the interaction of framework conditions such as, formal institutions, culture, infrastructure, demand and systematic conditions such as, networks of entrepreneurs, finance, leadership, talent, knowledge and support services Stam (2015) – thus considering both the abiotic and biotic components of EE Stam and Spigel (2016). Henceforth, just like in biology where the system of living organisms is considered to be at heart of ecosystem, in entrepreneurship the systematic conditions are to be at the heart of EE, while the framework conditions involve the social context which facilitate or hinders human interaction Stam and Spigel (2016).

Similarly, (Autio & Levie, 2015; Sussan & Acs, 2017) use the terms agents referring to the biotic component and micro-ecosystem which they refer to the institutional and macro-ecosystem for the abiotic component of the EE. Between biotic and abiotic elements, which are thought to be connected through nutrient cycles and energy flows Sussan & Acs (2017), a reinforcing cycle can be created. However, in an EE, such flows can be represented by regionally successful start-ups with a proven business model that scale up across the globe. In fact, most probably, that these scale-ups would transfer the value back i.e from global to local by investing in local potential start-ups. Policymakers are required to activate such cycles and enable the flows on priority basis.

Mason & Brown (2014) stated that ecological approach of the EE framework has links to economic development, where specific contextual factors facilitate high numbers of new businesses high-growth firms. The biological/ecological perspective on entrepreneurship can assist us in determining the ecosystem's structure and the relationships that exist within it. Ecosystems are also described as geographically bounded regions with interdependent elements Auerswald (2015). The ecological concepts for instance, diversity, selection, related diversification, resilience and adaptation analyse the dynamics of ecosystems (Alvedalen & Boschma, 2017; Auerswald & Dani, 2017; Boschma, 2014). According to Roundy et al., (2018), researchers should carefully consider the biological metaphor of the ecosystem. They contend that the biological ecosystem is relatively simple than the EE, since, in the former, agents do not aspire about how the system should operate.

In general, using the biological analogy, it is evident that the EE concept is promoting an approach to entrepreneurship that is socially interactive, evolutionary, and non-linear (Cooke 2016; Colombelli et al. 2017). The ecosystem approach, in particular, highlights how entrepreneurship occurs in a network of interdependent agents, people, organisations, and governing bodies within a specific geographic area (Isenberg, 2010; Kuratko et al., 2017).

There are numerous definitions of EE in the literature on entrepreneurship. A summary of the most important EE definitions from the literature is shown in Table 1.1. It is the fact, that the EE concept has diversified explanations in the entrepreneurship literature making it rather chaotic Martin & Sunley (2003) or fuzzy Markusen (1999). According to Spiegel (2017) instead of being a coherent theory, the concept might be viewed as a conceptual canopy containing various perspectives on the geography of entrepreneurship.

In spite of numerous EE definitions, this research study follows Stam (2015) definition of EE. The early definitions of EE as outlined by among others (Van de Ven 1993; Spilling 1996; Neck et al., 2004), emphasized on two main aspects such as, firstly, the interaction between components and actors is the dimension of complexity and secondly, the formation of new ventures is the end aim of EE. Other scholars and researchers (Mason and Brown, 2014; Isenberg, 2011, Neck et al., 2004) explained the elements, actors, components involved in EE in more detail and described the regional development perspective as its final aim. Stam (2015) has the advantage of expanding on prior contributions by shifting the focus of EE's investigation to productive entrepreneurship. This is a significant shift in perspective for entrepreneurship research, which is typically more inclusive and wide-ranging when considering new ventures. Similar to this, Spigel (2017) identified this productive dimension and linked it to a large body of entrepreneurship literature that was already existed before the EE concept was coined. While comparing the construct of EE with business and innovation ecosystem, we can spot some EE key features. Several features of EE construct are shared with business and innovation ecosystems, most of which are related to the ecosystem itself. Particularly, EE highlights the complexity and non-linearity of entrepreneurship, prosperities that, in the past, were equally crucial features of business and innovation ecosystems in the disciplines of strategy and innovation, respectively.

According to Iansiti and Levien (2004) that it is not possible to define the precise premises of an ecosystem; therefore, business, innovation and entrepreneurial all include several shared domains. For instance, the "innovation domain" is crucial to both productive EEs and innovation ecosystem. Similarly, all the three approaches such as, EE, business ecosystem and innovation ecosystem consider collaboration of large firms with small innovative start-ups a vital component. Despite of this, when analysing this kind of collaboration, the perspective for entrepreneurial, business, and innovation ecosystems changes in terms of their focal point, critical relationships and main output. The main aim of innovation ecosystem is to create value through innovation Autio and Thomas (2014), business ecosystem focuses on the learning of focal firm that how to manage the ecosystem in order to pursue competitive advantage Iansiti and Levien (2004), while, in EE the main focus is on the creation of new ventures Stam (2015).

While developing the abstract concept of the EE, the extensive previous literature has also presented a substantial number of frameworks that describe main elements, components and key attributes of an EE (Kuratko et al. 2017). Borrowing from Mason and Brown (2014), an EE is made up of "…entrepreneurial actors (both potential and existing), entrepreneurial organizations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of 'blockbuster entrepreneurship', number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment".

The pioneer work in EE domain is concentrated on economic actors in charge of EE development, interaction of those actors with themselves through formal and informal network, the contextual factors which exist in that region and the condition of physical infrastructure there (Spilling 1996; Neck et al. 2004; Cohen 2006). Afterwards, more details work in the field of EE have been done (Isenberg 2011; Feld 2012; WEF 2013; Mason and Brown 2014). Irrespective of the characteristics describing elements of EE, all highlighted the importance of the contextual effect of a region where entrepreneurship takes place.

Spigel (2015) emphasized on the combinations of cultural, social and material attributes with in a region that facilitate the development and growth of innovative start-ups and encourage infant entrepreneurs and other actors to take the risk of initiating, funding and assisting high-risk ventures. To make it shorter and simpler, EE is defined by Stam & Spigel (2016) as that enabling entrepreneurship in a region through a set of interconnected factors and actors. Before the concept of entrepreneurial ecosystem emerged, scholars such as Dubini (1989) defined the same concept but with different terminology such as entrepreneurial environment – presence of family business and role models, a strong business infrastructure, investment capital availability, a supportive entrepreneurial culture, and public policies that incentivise the venture creation Spigel (2015).

Other definitions emphasize on different elements / components such as talented workers, lawyers, large local firms, universities, research centres, serial entrepreneurs, that act as talent supporters (Neck et al., 2004; Patton & Kenney, 2005; Spilling, 1996). Similarly, the World Economic Forum (2013) and Isenberg (2010) recognised the presence of human capital, mentoring and supportive programmes, funding, local and global market access, a strong organisational framework, and universities as the fundamental components of ecosystems. According to Prahalad (2008) EE is creating a system that enables individuals, enterprise, and the society to work together toward creating economic profit Suresh & Ramraj (2012).

Despite numerous definitions of EEs Malecki (2018), the most widely used definition of EE is that of Stam (2015) as a ‘set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship’ Stam (2015) and the same would be followed in this study. While the table 2.1 shows that EE researchers have not developed their consensus over uniform EE definition, they agreed on the environment in which entrepreneurship takes place and the role of individual factors and actors that enable or hinders the entrepreneurial activity in a region.

Table 2.1: Definitions of Entrepreneurial Ecosystem

S. No	Author	Source	Definition
1	Van de Ven (1993)	Journal of Business Venturing	Networks of actors involved in developing each function and how these functions and networks of actors interacted over time to facilitate and constrain innovation development.
2	Spilling (1996)	Journal of Business & Research	An entrepreneurial ecosystem consists of a complexity and diversity of actors, roles and environmental factors that interact to determine the entrepreneurial performance of a region or locality.
3	Neck et al., (2004)	Journal of Small Business & Management	Entrepreneurial ecosystems are defined as the interacting components of entrepreneurial systems which foster new firm creation in a specific regional context.
4	Cohen (2006)	Business Strategy and the Environment	Sustainable entrepreneurial ecosystems are defined as an interconnected group of actors in a local geographic community committed to sustainable development through the support and facilitation of new sustainable ventures.
5	Isenberg (2011)		The entrepreneurship ecosystem consists of six domains. Actually, the entrepreneurship ecosystem consists

			of hundreds of specific elements that for convenience, we group them into six general domains: a conducive culture enabling policies and leadership availability of appropriate finance, quality human, capital venture, friendly markets for products and a range of institutional and infrastructural supports.
6	Roberts and Easley (2011)	Foundations and Trends in Entrepreneurship	A complex community of living and non-living things that are functioning together as a unit.
7	Qian et al., (2012)	Journal of Economic Geography	Those economic, social, institutional and all other important factors that interactively influence the creation discovery and exploitation of entrepreneurial opportunities.
8	Acs et al., (2014)	Research & Policy	A dynamic institutionally embedded interaction between entrepreneurial attitudes, abilities, and aspirations, by individuals which drives the allocation of resources through the creation and operation of new ventures.
9	Mason and Brown (2014)	Organization for Economic & Cooperation Development (OECD)	A set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organizations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and

			entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of blockbuster entrepreneurship, number of serial entrepreneurs, degree of sell out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment.
10	Mack and Mayer (2015)	Urban Studies	Entrepreneurial ecosystems consist of interacting components which foster new firm formation and associated regional entrepreneurial activities.
11	Stam (2015)	European Planning & Studies	The entrepreneurial ecosystem is a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory.
12	Audretsch and Belitski (2016)	The Journal of Technology Transfer	A dynamic community of interdependent actors (entrepreneurs, supplies, buyer, government, etc.) and system level institutional, informational and socioeconomic contexts interact via information technologies and networks to create new ideas and more efficient policies.

13	Strickling (2016)		An entrepreneurial ecosystem is a co-evolving population of interdependent social actors and factors coordinated (cooperating) through communication in such a way that they enable productive entrepreneurship.
14	Auerswald and Dani (2017)	Small Business & Economics	Represents the higher-level infrastructure that enables interactions between the entrepreneurial agents and institutions in the industrial sector. They cut across industries and focus on the environment surrounding entrepreneurs – with entrepreneurs and entrepreneurship clearly at the centre.
15	Bruns et al., (2017)	Small Business & Economics	An Entrepreneurial ecosystem is a multi-dimensional set of interacting factors that moderate the effect of entrepreneurial activity on economic growth.
16	Kuratko et al., (2017)	Small Business & Economics	Entrepreneurial ecosystem as coordinated attempts to establish environments that are conducive to the probabilities of success for new ventures following their launch. Entrepreneurial ecosystems are focused on creating environments conducive to the success of entrepreneurs and their new ventures.

17	Spigel (2017)	Entrepreneurship Theory & Practice	A combination of social, political, economic, and cultural elements within a region that support the development and growth of innovative startups and encourage nascent entrepreneurs and other actors to take the risks of starting, funding, and otherwise assisting high risk ventures.

2.2 Theoretical Development of Entrepreneurial Ecosystem Approach

Entrepreneurship researchers highlight that EE emphasizes the context and social factors of entrepreneurship (Austin et al., 2006; Welter & Gartner, 2016). Recent theoretical developments in this domain are heavily influenced by literature on entrepreneurship, regional development approaches (including industrial districts, clusters, innovation systems and regional innovation system approaches) (Acs et al., 2017; Brown & Mason, 2017; Malecki, 2018). These fields of knowledge have examined the nature of entrepreneurship, institutional context and specific geographical attributes in business activity.

Subsequent research in this domain has built on the idea of Marshallian industrial districts (Krugman, 1991) first with the pioneering work of innovation scholars who devised the concept of the innovation system (Freeman, 1995; Lundvall 1992), regional innovation system (Cooke, 2001; Cooke et al., 1997), triple helix model (Leydesdorff & Etzkowitz, 1996) and the popular literature on regional clusters (Delgado et al., 2010; Porter, 1998). Although these approaches, and EE more broadly, have different goals, methodologies and the perception regarding how the economy works, they share recognition that factors outside the firm and inside a region contribute to the competitive advantage of firms Spigel and Horrison (2018).

The survival and growth of firms is dependent on the context in which firms operate Sami Ullah, (2019). Institutional and regional contexts are common attributes both in the entrepreneurial ecosystem and regional development approaches. However, regional development approaches (i.e., industrial districts, industrial clusters and innovation systems approach) focus on organizations and institutions, treating entrepreneurs as external incumbents. Whereas EE places entrepreneurs at the heart of system, acknowledging their central role in triggering entrepreneurial activity Feld (2012). The mere presence of business opportunity is useless unless an entrepreneur captures and exploits it, in the belief it is profitable and feasible (Autio et al., 2013; Mcmullen & Shepherd, 2006). According to Feld (2012) policy makers' attempts to build an entrepreneurial environment can often fails due to lack of engagement with entrepreneurs.

The argument of Marshall (1920) is the common attribute in other regional economic development approaches and EEs approach, that the competitive advantage of a firm is based on uncontrollable factors in the external environment of an organization and within the environment in which it operates. Both the industrial districts and cluster approaches focus on the role of a common technology base, shared by multiple competing and cooperating firms to determine the success or failure of an enterprise. However, whereas the focus of the clusters approach is on increasing the number of firms, complementing each other in a specific location, EE approach places entrepreneurs at the heart of the system Feld (2012). In EEs domain, entrepreneurs are not only users of the institutional and physical conditions, but they also feed into this system through the feedback loop mechanism Spigel and Harrison (2018).

In 1990s, with the publication of books by Lundvall (1992), Nelson (1993) and Edquist and Johnson (1996), the innovation system theory has attracted the attention of policy makers. This approach contributed that the basic resource of every successful economy is knowledge, and the institutional context of any country is responsible to convert that knowledge into innovation. This approach emphasized the systematic view of innovative activity based on the supposition that knowledge is power, and consequently, supportive framework conditions for use of knowledge lead to innovative outcomes. Hence, the capacity of any economy to yield innovative outcomes is entrenched in the structure of its institutions. It was assumed that weaknesses of institutional elements such as, lack of information about financing sources or other sources of knowledge, or lack of interaction of the actors namely, institutions and firms lead to innovation system failure. Therefore, it is the institutional framework rather than individual R&D efforts and individual entrepreneurs, that promotes or hinders innovation. The drawback of this innovation systems approach is its focus on institutions and firms, while the role of individual entrepreneurs remains somewhat of a blind box.

During the peak of research on innovation systems theory, research on entrepreneurship was focused at the individual level aspects on such as, the personality traits of entrepreneurs. This research tended to overlook to relationship of entrepreneurs with the broader economic framework Cavallo et al., (2018). Researchers in this area tended to ignore the effect of external environment (context) on the entrepreneurs. However, the scholars in the domain of regional development began to shone a light on the impact of context through the concepts of industrial districts, clusters and innovation systems Acs et al., (2017). Thus, taking an institutional and regional context is common both in the EE approach and in the regional development approaches (industrial districts, industrial clusters and innovation systems approach). However, besides similarities with these approaches, EE research is distinct in multiple ways.

First, Terjesen et al., (2017) stated that where clusters are limited to one industry with focus on the relationship among the firms, EE cross the industry boundaries and empower multiple industries with focus on the environment surrounding entrepreneurs. In other word, we may say that EE is broader in terms of industry scope than clusters. Second, EE research has emphasized the role of entrepreneurs rather than government or other large organizational actors in creating a stable entrepreneurial community. Ecosystems literature places entrepreneurs at the heart of system and considered them as regional leaders who are responsible for the identification of issues that need to be addressed and the creation of entrepreneurial activity that brings changes in the ecosystem (Feld, 2012; Stam, 2015). Though, successful entrepreneurs often emerge as ecosystem leaders and ecosystem framework acknowledges them as critical agents, it is important to recognize that these ecosystems remain influenced by other stakeholders including universities, philanthropic groups, incubators, governments, industries and local and regional actors (Lowe & Feldman, 2017; Hayter 2016).

The journey from innovation system, regional innovation system, industrial districts and clusters approaches to an EE approach emphasizes the interaction between the entrepreneurs and institutional structures in examining the entrepreneurial output. The EEs approach adopts an evolutionary approach and considers the mutual learning of institutions and entrepreneurs as result of this interactive process. Stam and Spigel (2016) propose that this approach has shifted the unitary and individual focused research on entrepreneurship to a more institutional and interactive level.

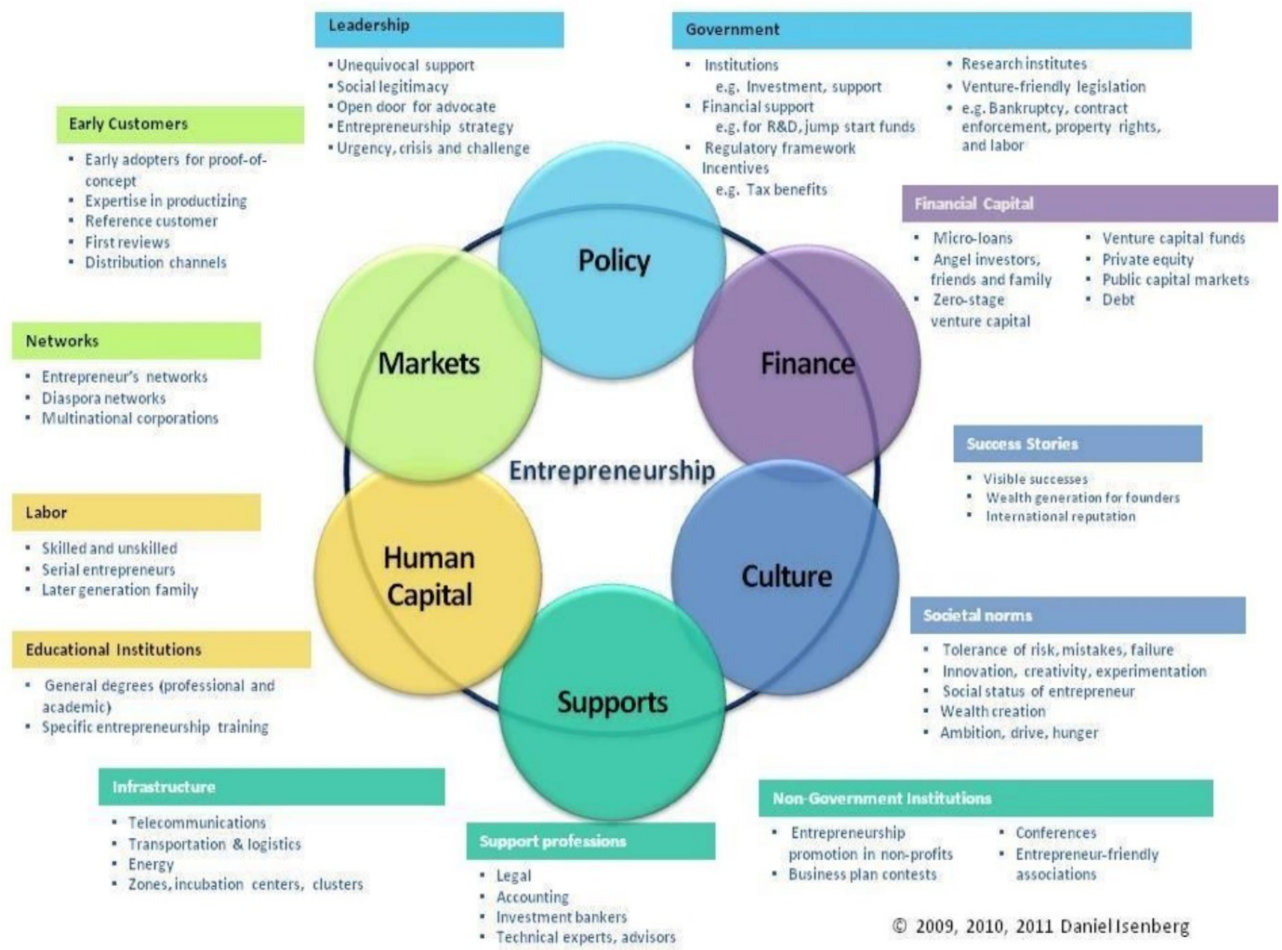
The EE approach is in a developmental phase, and it has not yet strictly demarcated itself by elaborating all the conceptual questions. It is still unclear how to measure EEs. Therefore, it is important to undertake a constructive synthesis of literature in this domain to understand the components of EE contributed by different previous studies. Moreover, the entrepreneurship development from regional context can help in developing a framework for measurement of EEs.

2.2.1 A Synthesis of Previous Studies on Entrepreneurial Ecosystem

Among others, Isenberg (2011), Feld (2012), Spigel (2017), Cohen (2006), Stam (2015), Neck et al., (2004), Suresh & Ramraj (2012) briefly discussed the domains, attributes, elements, factors, conditions and pillars that are prerequisite for successful entrepreneurial ecosystems.

Isenberg (2010) stated that there is no perfect combination of elements to develop the successful entrepreneurial ecosystem, however, policy makers are required to focus on understanding the local conditions and their value in gradually creating an entrepreneurial ecosystem. Isenberg (2011) recommended a bottom-up process for developing entrepreneurial ecosystem and propose a model consists of six domains namely; policy, finance, culture, markets, human capital and supports as shown in figure 2.1. These six domains further consist of large number of indicators which are interdependent and interact with each other in hundreds of complex ways. Therefore, finding a causal link is not only difficult but, even if achieved, is of limited value due to complex interactions. However, this work emphasizes the value of context with each entrepreneurial ecosystem emerging and maturing in response to a unique balance of conditions.

Figure 2.1 Isenberg's model of Entrepreneurship Ecosystem



Source: Adopted from Isenberg (2011).

A model proposed by Feld (2012) sets out to measure the entrepreneurial ecosystem. Feld recommends that nine factors namely; leadership, intermediaries, network density, government, talent, support services, engagement, companies, capital as shown in table 2.2 play a vital role in the success or failure of entrepreneurial ecosystem. Access to resources and the supportive role of the government and context are the central points of this model. However, the interdependence of these components is still not addressed.

Table 2.2 Feld's Attributes of Successful Start-up Communities

Attribute	Description
Leadership	Strong group of entrepreneurs who are visible, accessible and committed to the region being a great place to start and grow a company
Intermediaries	Many well-respected mentors and advisors giving back across all stages, sectors, demographics and geographies as well as a solid presence of effective, visible, well-integrated accelerators and incubators
Network Density	Deep, well-connected community of start-ups and entrepreneurs along with engaged and visible investors, advisors, mentors and supporters. Optimally, these people and organizations cut across sectors, demographics and culture engagement. Everyone must be willing to give back to his community
Government	Strong government support for and understanding of start-ups to economic growth. Additionally, supportive policies should be in place covering economic development, tax and investment vehicles
Talent	Broad, deep talent pool for all levels of employees in all sectors and areas of expertise. Universities are an excellent resource for start-up talent and should be well connected to community
Support Services	Professional services (legal, accounting, real estate, insurance and consulting) are integrated, accessible, effective and appropriately priced
Engagement	Large number of events for entrepreneurs and community to connect, with highly visible and authentic participants (e.g. meet-ups, pitch days, start-up weekends, boot camps, hackathons and competitions)
Companies	Large companies that are the anchor of a city should create specific departments and programs to encourage cooperation with high-growth start-ups
Capital	Strong, dense and supportive community of venture capitalists, angels, seed investors and other forms of financing should be available, visible and accessible across sectors, demographics and geography

Source Feld (2012, pp.186-187)

The World Economic Forum (WEF), the Kauffman Foundation and the OECD followed the ideas of Isenberg (2011) and Feld (2012). These groups developed models with number of indicators to measure entrepreneurial ecosystems and stimulated a wave of research to examine the characteristics of entrepreneurial ecosystems and their effect on entrepreneurial activity (Acs et al., 2014; Alvedalen and Boschma, 2017; Audretsch and Belitski, 2017; Auerswald, 2015; Mack and Mayer, 2016; Qian, 2017; Spigel, 2017; Stam and Bosma, 2015; Stam and Spigel, 2016).

The World Economic Forum (2013) illustrated eight pillars namely; accessible markets, human capital / workforce, funding and finance, support systems / mentors, government and regulatory framework, education and training, universities as catalyst, cultural support of an entrepreneurial ecosystem shown in table 2.3. It is largely an overlap of the attributes of Feld model (2012) and Isenberg model (2011) of the entrepreneurial ecosystems. These pillars of entrepreneurial ecosystems highlighted the importance of accessibility to human and financial resources and role of formal and informal institutional frameworks for the progress of entrepreneurship.

Table 2.3 WEF's Pillars and components of Entrepreneurial Ecosystem

Pillar	**Components**
Accessible Markets	Domestic market: large/medium/small companies as customers and governments as customer Foreign market: large/medium/small companies as customers and governments as customer
Human Capital/ Workforce	Management talent, technical talent, entrepreneurial company experience, outsourcing availability and access to immigrant workforce
Funding and Finance	Friends and family, angel investors, private equity, venture capital and access to debt
Support Systems/Mentors	Mentors/advisors, professional services, incubators/accelerators and networks of entrepreneurial peers
Government and Regulatory Frameworks	Ease of starting a business, tax incentives, business-friendly legislation/policies, access to basic infrastructure, access to telecommunications/broadband and access to transport
Education and Training	Available workforce with pre-university education, available workforce with university education and those with entrepreneurship-specific training
Major Universities as Catalysts	Promoting a culture of respect for entrepreneurship, playing a key role

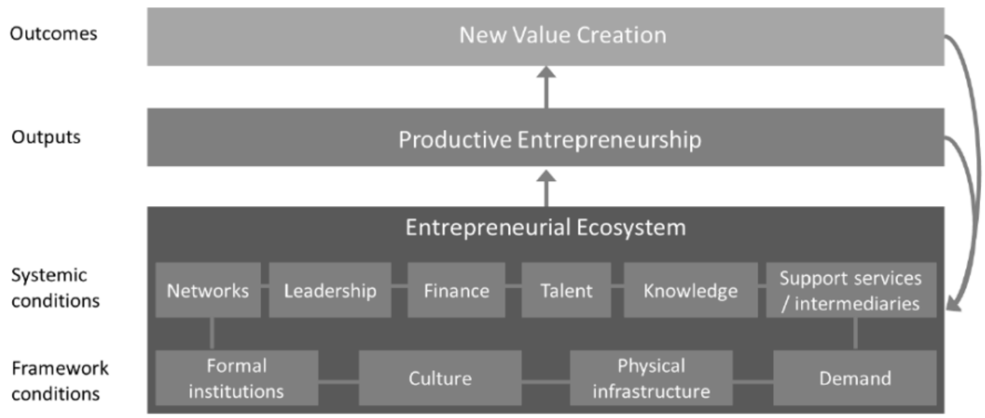
Cultural Support	in idea-formation for new companies and playing a key role in providing graduates to new companies Tolerance for risk and failure, preference for self-employment, success stories/role models, research culture, positive image of entrepreneurs hip and celebration of innovation

Source *World Economic Forum (WEF) (2013, pp. 6-7)*

The common characteristics of all these models is a shift in the traditional economic understanding about entrepreneurship in general and the role of entrepreneurs and their interaction with the other stakeholders. In addition, the entrepreneurial outcome is achieved using different modes of governance and the institutional context facilitates or hinders entrepreneurship. However, there is a general consensus in this domain that entrepreneurial activity depends on the combinations of social, institutional and economic factors. Moreover, the varying combinations of these factors are expected to create entrepreneurial ecosystems which vary from place to place (Brown and Mason, 2017; Spigel, 2017; Stam and Spigel, 2016; Stangler and Bell-Masterson, 2015).

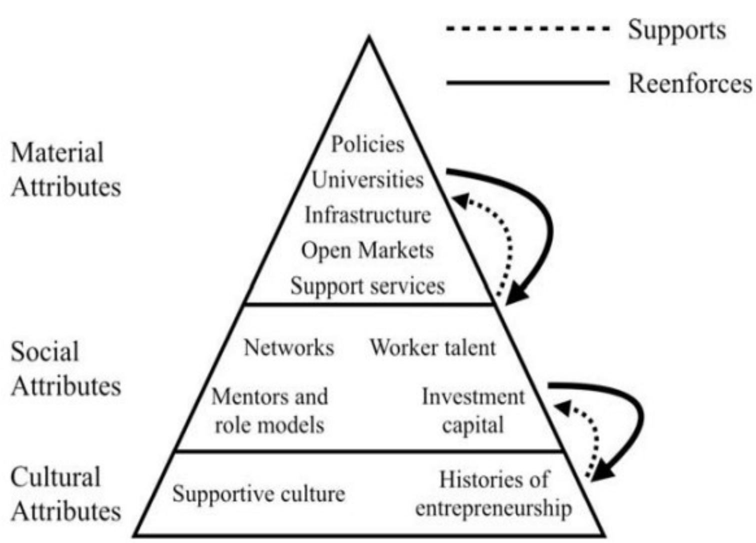
Using innovation system theory and entrepreneurship geographic-based approach, Stam (2015) proposed an entrepreneurial ecosystem to be based on the interaction nature of entrepreneurial outcomes (new value creation), entrepreneurial output (productive entrepreneurship), systematic conditions (network, leadership, finance, talent, knowledge, support services / intermediaries) and framework conditions (formal institutions, physical infrastructure, culture, demand). As shown in figure 2.2, Stam's framework highlights that systematic conditions and framework conditions affect the entrepreneurial output, namely productive entrepreneurship, which in turn contributes to value creation in society at large. A feedback loop is shown to explain the effect of entrepreneurial activity on systematic and framework conditions. This model is inherently linear in nature as it does not account for the interactive nature of indicators of systematic and framework conditions.

Figure 2.2 Stam's model of entrepreneurial ecosystem



Another framework that does consider how attributes of an EE interact is that proposed by Spigel (2017). It involves the elements commonly mentioned in other EE frameworks e.g. Isenberg (2011), while also recognizing that they are in constant interaction. In addition, Spigel's framework consists of three basic attributes namely; cultural, social and material attributes which further spilt into ten subfactors as shown in table 2.4. These three interact and support or reinforce one another which we do not witness in earlier models or frameworks of entrepreneurial ecosystems as shown in figure 2.3.

Figure 2.3 Relationship Among Ecosystem Attributes



Source Adopted from Sigel, 2017

The figure 2.3 illustrates that each category of attributes reinforces and support other category of attributes, for instance, the development and success of material attributes can reinforce the social attributes which in turn strengthening the fundamental cultural attributes.

Table 2.4 Spigel's Attributes of Entrepreneurial Ecosystem

Table of Attribute	Attribute	Description	Examples
Cultural	Supportive Culture	Cultural attitudes which support and normalize entrepreneurial activities, risk taking, and innovation.	Aoyama (2009); Feldman (2001); Julien (2007)
	Histories of Entrepreneurship	Prominent local example of successful entrepreneurial ventures.	Nelles et al. (2005); Feld (2012)
Social	Worker Talent	Presence of skilled workers who are willing to work at startups.	Arruda, Nogueira, and Costa (2014); Audretsch et al. (2011); Bahrami and Evans (1995); Harrison and Leitch (2010)
	Investment Capital	Availability of investment capital from family and friends, angel investors, and venture capitalists.	van der Borgh, Cloodt, and Romme (2012); Kenney and Patton (2005); Malecki (2009)
	Networks	Presence of social networks that connect entrepreneurs, advisors, investors, and workers and that allow the free Now of knowledge and skills.	Dubini (1989): Malecki (1997); Neck et al. (2004)
	Mentors and Role Models	Local successful entrepreneurs and business people who provide advice for younger entrepreneurs	Feld (2012); Kenney and Patton (2005): World Economic Forum (2013)
	Policy and Governance	State-run programs or regulations that either support entrepreneurship through direct funding or remove barriers to new venture creation.	Desrochers and Saulet (2008); Isenberg (2010)

Material	Universities	Universities and other higher education institutions which both train new entrepreneurs and produce new knowledge spillovers.	Audretsch et al. (2011); Dubini (1989); Feldman et al. (2005); Wolfe (2005)
	Support Services	Firms and organizations that provide ancillary services to new ventures, for example, patent lawyers, incubators, or accountancies.	Kenney and Patton (2005); Patton and Kenney (2005); Startup Genome Project (2012)
	Physical Infrastructure	Availability of sufficient office space, telecommunication facilities, and transportation infrastructure to enable venture creation and growth.	Audretsch et al. (2011); Mack and Rey (2014)
	Open Markets	Presence of sufficient local opportunities to enable venture creation and unimpeded access to global markets.	Spilling (1996); World Economic Forum (2013)

Source: Spigel, 2017, pg. no 56

The Global Entrepreneurship Monitor (GEM) after 20 years of extensive research on observing entrepreneurship combined with the academic literature across the globe has presented entrepreneurship metrics under the title of entrepreneurship framework conditions (EFCs). Theses EFCs contains cultural, economic and social status in a business environment. GEM has found that the state of EFCs influences the development of new business Levie & Autio (2008). Table 2.5 shows the 12 EFCs Bosma et al., (2021) along with their descriptions.

Table 2.5 GEM Entrepreneurial Framework's Conditions (EFCs)

1- Access to Entrepreneurial Finances: Sufficient funds are available to new startups, from informal investment and bank loans to government grants and venture capital.
2.1- Government Policy - Support and Relevance: Government policies promote entrepreneurship and support those starting a new business venture.
2.2- Government Policy - Taxes and Bureaucracy: Business taxes and fees are affordable for the new enterprise. Rules and regulations are easy to manage, without undue burden on the new business.
3- Government Entrepreneurship Programs: Quality support programs are available to the new entrepreneur at local, regional, and national levels.
4.1- Entrepreneurial Education at School: Schools are introducing ideas of entrepreneurship and instilling students with entrepreneurial values such as enquiry, opportunity recognition and creativity
4.2- Entrepreneurial Education Post-School: Colleges, universities and business schools offer effective courses in entrepreneurial subjects, alongside practical training in how to start a business.
5- Research and Development Transfer: Research findings, including from universities and research centers, can readily be translated into commercial ventures.
6- Commercial and Professional Infrastructure: There are sufficient affordable professional services such as lawyers and accountants to support the new venture, within a framework of property rights.
7.1- Ease of Entry - Market Dynamics: There are free, open, and growing markets where no large businesses control entry or prices.
7.2- Ease of Entry - Market Burdens and Regulations: Regulations facilitate, rather than restrict, entry
8- Physical Infrastructure: Physical infrastructure (such as roads), Internet access and speed, the cost and availability of physical spaces, is adequate and accessible to entrepreneurs.
9- Social and Cultural Norms: National culture encourages and celebrates entrepreneurship, including through the provision of role models and mentors, as well as social support for risk-taking.

The following table 2.6 shows the summary of the EE elements / components / pillars etc. presented by different previous studies at different time period.

Table 2.6 Factors shaping entrepreneurial ecosystem

Researcher	Title	Source	Factors description
Bosma et al., (2021)	Global Entrepreneurship Monitor 2020/2021 Global Report	The Global Entrepreneurship Research Association, London Business School	Access to entrepreneurial finance, government policy, government entrepreneurship programs, entrepreneurial education, research and development transfer, commercial and professional infrastructure, physical infrastructure, social and cultural norms
Mujahid et al., (2019)	Prioritizing dimensions of entrepreneurial ecosystem: a proposed framework	Journal of Global Entrepreneurship Research https://doi.org/10.1186/s40497-019-0176-0	Human resource development, finance, support, industrial network relationship, government role, infrastructure, mentorship, market
Audretsch et al., (2017)	Entrepreneurial ecosystems in cities: establishing the framework conditions	Journal of Technology Transfer DOI 10.1007/s10961-016-9473-8	Culture, formal institutions, infrastructure, information technology, labor, melting pot and demand
Mack & Mayer (2016)	The evolutionary dynamics of entrepreneurial ecosystems	DOI: 10.1177/0042098015586547	Core elements: firm entries and exits; policy; finance; culture; support; human capital; markets; policy implications
Arruda et al., (2015)	The Brazilian Entrepreneurial Ecosystem of Startups: An Analysis of Entrepreneurship Determinants in Brazil and the Perceptions Around the Brazilian Regulatory Framework	DOI 10.1007/978-3-319-11412-5_2	Policies and laws, state universities, public institutions, private institutions, culture, human capital, markets
Spigel, (2017)	The Relational Organization of Entrepreneurial Ecosystem	Entrepreneurship Theory and Practice DOI: 10.1111/etap.12167	03 categories of attributes: social, cultural and material

Stam, (2015)	Entrepreneurial Ecosystems and Regional Policy: A Sympathetic Critique	European Planning Studies http://dx.doi.org/10.1080/09654313.2015.1061484	formal institutions; culture; physical infrastructure; demand; networks; leadership; finance; talent; knowledge; support services/intermediaries. Outputs represent entrepreneurial activity and outcomes aggregate value creation
Kshetri (2014)	Developing successful entrepreneurial ecosystems	Baltic Journal of Management DOI 10.1108/BJM-09-2013-0146	Corporate governance, values and culture, entrepreneurial skills, research and development, technology, development of financial markets, market access
Mason & Brown, (2014)	Entrepreneurial ecosystems and growth-oriented entrepreneurship	Entrepreneurial-ecosystems.pdf (oecd.org)	actors; resource providers; connectors; and entrepreneurial orientation
World Economic Forum (2013)	The Global Entrepreneurship Monitor (GEM) and Its Impact on Entrepreneurship Research	http://dx.doi.org/10.1561/0300000033	Market, human capital, financial resources, support systems, infrastructure and regulatory framework, education, universities, and culture
Vogel, (2013)	The employment outlook for youth: building entrepreneurial ecosystems as a way forward	Conference Proceedings of the G20 Youth Forum, 2013 The Employment Outlook for Youth: Building Entrepreneurship Ecosystems as a Way Forward by Peter Vogel	Government and regulations, market, innovation, geographic location, infrastructure, financing, support, culture, education, network, visibility
Feld (2012)	Startup communities: building an entrepreneurial ecosystem in your city	Start-up Communities: Building an Entrepreneurial	Leadership, network density, intermediaries, government, talent,

		Ecosystem in Your City (Book)	support services engagement, companies, capital
Suresh & Ramraj, (2012)	Entrepreneurial Ecosystem: Case Study on the Influence of Environmental Factors on Entrepreneurial Success	European Journal of Business and Management	Network support, government, market, financing, ethical, technological, social and environmental factors
D. J. Isenberg, (2010)	The Entrepreneurship Ecosystem Strategy as a New Paradigm for Economic Policy: Principles for Cultivating Entrepreneurship	Harvard Business Review, June 2010	Culture, government, human capital, financial capital, market, policy, and support
Ahmad & Hoffman, (2007)	A Framework for Addressing and Measuring Entrepreneurship OECD Statistics	https://ssrn.com/abstract=1090374	Determinants (regulatory framework, culture, market conditions, access to finance, R&D and Technology, entrepreneurial capabilities) entrepreneurial performance; and impact
Neck et al., (2004)	An Entrepreneurial System View of New Venture Creation	Journal of Small Business Management	Major components incubators; spin-offs; formal networks; informal networks; physical infrastructure; culture
Cohen, (2006)	Sustainability Valley Entrepreneurial Ecosystem	Business Strategy and Environment	Formal networks, informal networks, universities, government, support and expertise services, investment, and talent pool
Van de Ven (1993)	The development of an infrastructure for entrepreneurship	Journal of Business Venturing https://doi.org/10.1016/0883-9026(93)90028-4	institutional arrangements; public resource endowments; market demand; and proprietary business activities

Neck et al. (2004), Cohen (2006), Isenberg (2011) and Stam (2015) allow for an appreciation of the entrepreneurial ecosystem as a whole system. Spigel (2017) follows the configurational approach and illustrates the composition and interaction of the elements of the entrepreneurial ecosystem. Another theoretical perspective is added to the body of knowledge by Stangler and Bell-Masterson (2015) to consider the entrepreneurial ecosystem as a network. Though the extant research has explained the composition, measurement and interaction of the elements in the entrepreneurial ecosystem, the understanding of the individual contribution of each driver in the development of entrepreneurial ecosystem remains underdeveloped. To address this issue, this study deploys the framework of entrepreneurial ecosystem Spigel (2017) to capture the relative importance of each driver in the development of entrepreneurial ecosystems.

According to Spigel (2017), an entrepreneurial ecosystem can be broadly categorized into three main attributes: cultural, social, and material. Cultural attributes are the fundamental beliefs and outlooks about entrepreneurship within a region Spigel (2017) and the previous literature has examined that how localized cultural attributes affect the regional entrepreneurship process (among others, Stuetzer et al. 2014; Vaillant & Lafuente, 2007). EE includes two types of cultural attributes for instance, cultural attitudes and history of entrepreneurship Spigel (2017). These attributes are either positive or negative towards entrepreneurship. Positive attitudes can normalize the risks of entrepreneurship and facilitate the venture creation while the negative cultural outlooks result in creating barriers to become entrepreneurs Fritsch & Storey (2014).

Developing platform for EE development, on the one hand, a supportive culture towards entrepreneurship can be reinforced by the presence of success stories about other local entrepreneurs Feld (2012) and these stories can be mobilized by policy makers as larger part of entrepreneurship campaigns Nelles et al., (2005). This will result that when entrepreneurs observe other individuals in their community who have successfully started and grown business, it can help to legitimize the idea of entrepreneurship as a viable career path and reduce the stigma associated with the risks and uncertainties involved (Isenberg, 2010; Kibler et al., 2013). This, in turn, can increase the willingness of entrepreneurs and other actors to engaged in innovative entrepreneurship and take necessary risks to initiate and grow new ventures Ritsila (1999). On the other hand, cultures that do not celebrate entrepreneurship or view it as a risky or undesirable career choice can create barriers to entry for aspiring entrepreneurs, making it more difficult to get involved in entrepreneurial activity Aoyama (2009). By understanding the cultural component of an entrepreneurial ecosystem, policymakers, and other stakeholders can work to create a more supportive environment for entrepreneurship by promoting a positive outlook on entrepreneurship and highlighting success stories of local entrepreneurs.

Social attributes are the resources composed of or acquired through the social networks within a region. The work on the importance of social network in the entrepreneurship process is well-documented Stuart & Sorenson (2005). Strong social networks play a critical role in connecting entrepreneurs with key resources necessary for venture growth Birely (1989), helping angel investors and venture capitalists to identify potential investment opportunities and evaluate the potential of new ventures Powell et al., (2002) and assisting entrepreneurs to identify talented workers with the right skills and experience Wapshott and Mallett (2015). Strong social networks can help to facilitate the flow of resources and information within an entrepreneurial ecosystem, supporting the growth and development of new ventures over the long term.

In addition, to connecting entrepreneurs with key resources like financial, and human, strong social networks can also facilitate knowledge sharing and learning among entrepreneurs Aldrich & Yang (2013). Entrepreneurial ecosystem contains four different types of social attributes for instance, the network themselves, investment capital, mentors, and worker talent Spigel (2017). Discussion about the significance of social networks to entrepreneurship within a territory is not new but date back three decades Aldrich & Zimmer (1986). Strong network helps entrepreneurs in multiple ways for instance, in collecting updated market and technological knowledge, acquiring resources such as investment capital and accessibility to suppliers and customers Hoang & Antoncic (2003). According to Schutjens and Völker (2010), networks are typically locally focused and contain the densest links as a result of regular face-to-face interactions. Dense social networks within an area provide a "buzz" of knowledge flow that enables entrepreneurs to access knowledge streams they would not otherwise be able to access, while connections outside the region are essential for importing novel knowledge Bathelt et al., (2004). Investment capital is the second attribute of social attributes and includes the financial resources available and accessible to entrepreneurs for instance venture capitalists, angel investors, or the friends and family of entrepreneurs are considered as critical components of EE Malecki (2011). The third EE social attribute is mentors and dealmakers. The presence of mentors in a region leads to firm formation and survival rates Lafuente et al., (2007) and also the performance of entrepreneurs most of the time depends on the availability of mentors (Bosma et al., 2012; Ozgen & Baron, 2007). Worker talent is considered to be the last social attribute of EE. The availability of skilled workers who are accustomed to the challenges is a key resource in EE for new ventures Spigel (2017).

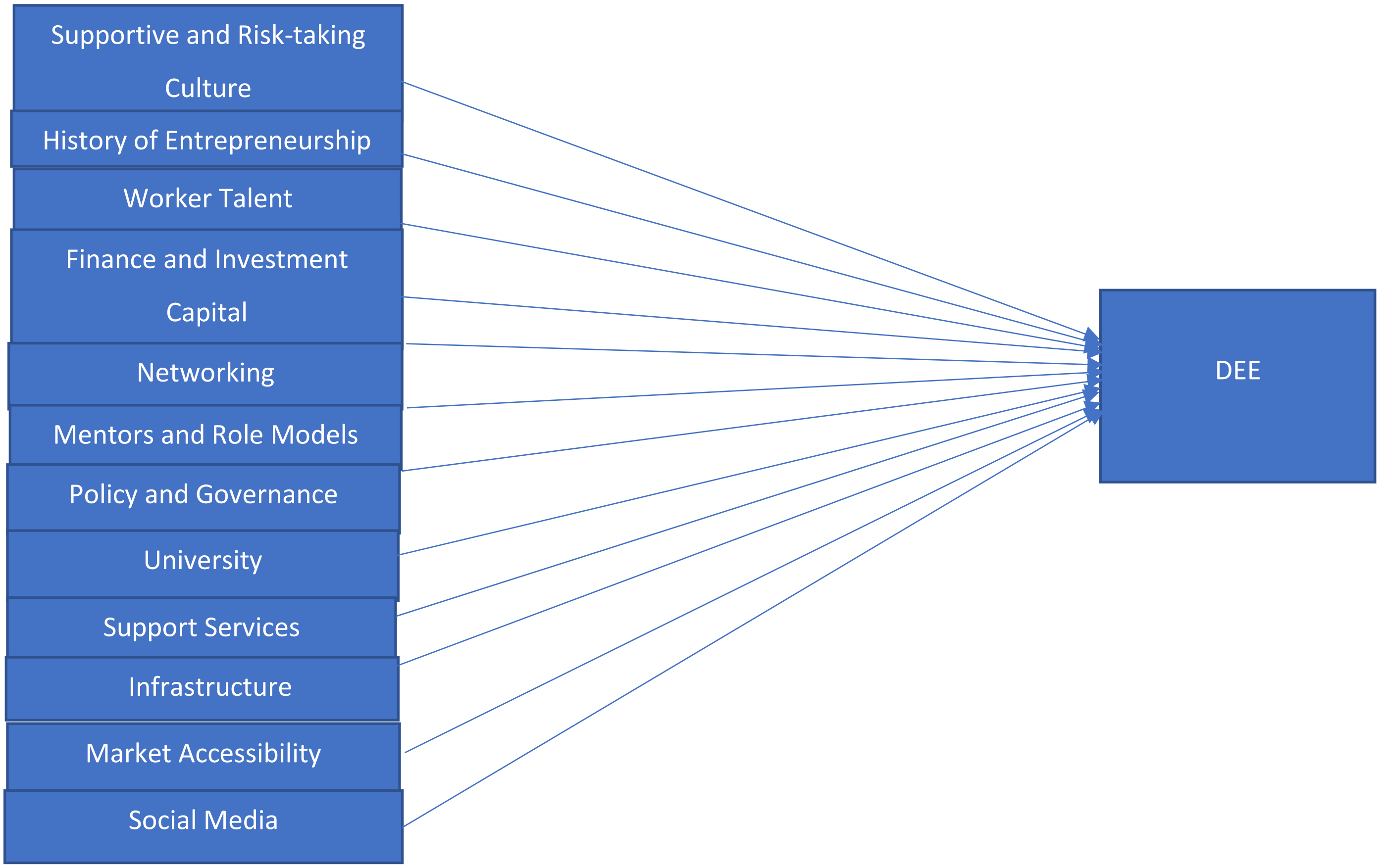
The material attributes are important component of EE including those with tangible presence in the territory which support high-growth entrepreneurship. This presence might include a physical location for instance, universities and support organizations, or formalized rules including entrepreneurial policies well-regulated markets which materialize locally Spigel (2017). The role and contribution of each cultural, social and material attribute is discussed in the proceeding section 2.4.

2.3 Theoretical framework

The current study initially deployed the Spigel (2017) framework to answer the research questions of the current study. This framework illustrates EE attributes for instance, cultural attributes (supportive and risking culture, history of entrepreneurship), social attributes (worker talent, investment capital, networks, mentors and role model) and material attributes (policy and governance, universities, support services, physical infrastructure, open markets). The researcher considered these attributes to find out the relative importance of each attribute in EE development in two different contexts. However, to get better and effective results, it is important to carefully examine the contextual factors. In this regard, Isenberg (2011) argues that, that it is not possible, for example, to replicate a new Silicon Valley in another community or nation by simply replicating the same features of its EE rather than to identify benchmark elements to be analyzed and developed according to each country's context.

Following this approach, the researcher conducted semi-structure interviews in Pakistan and Italy to get familiar with the EE elements in both contexts. The findings of the semi-structure interviews demonstrated that an additional factor namely, social media is considered as an important element (among others) of EE in Pakistan and Italy. Based on the literature and the findings of the semi-structured, a theoretical framework for Pakistani and Italian contexts were developed to show the relationships between the variables. The following figures show the theoretical framework of the current study in the contexts of Pakistan and Italy.

Figure 2.4 Theoretical Framework in the context of Pakistan and Italy



Independent variables **Dependent variable**

2.3.1 Dependent variable (entrepreneurial ecosystem development)

In this study, development of EE is dependent variable. Despite numerous definitions of EEs Malecki (2018), the most widely used definition of EE is that of Stam (2015) as a 'set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship Stam (2015). These actors and factors are considered as contextual factors which influence the entrepreneurial activity in a region and thus facilitates or hinders the EE development. EE development and sustainability is complex and challenging process which involve the contextual stakeholders for instance, business support organizations (Kenney & Patton, 2005; Patton & Kenney, 2005), availability and accessibility to mentors (Feld, 2012; Kenney and Patoon, 2005), human capital (Arruda et al., 2014, (Arruda et al., 2015; Audretsch et al., 2012; R. T. Harrison & Leitch, 2010), financial resources, (Kenney & Patton, 2005; Van Der Borgh et al., 2012), presence of universities (Audretsch et al. 2011; Dubini 1989; Feldman et al. 2005; Neck et al., 2004; Spigel, 2017), entrepreneurship oriented culture (Aoyama, 2009; Feldman, 2001; Isenberg, 2010, Julien, 2007), formal and informal networks (Neck et al., 2004, Birely, 1988, Spigel, 2017) open markets (Spilling, 1996; World Economic Forum 2013), policy and governance (Desrochers & Sautet, 2008; Isenberg, 2010).

According to Van de Ven (1993) that EE evolves through a set of interdependent elements which coordinate with each other to produce new ventures with passage of time. Neck et al., (2004) were among the pioneers to attempt to holistically investigate the interaction of several EE elements in Boulder County, which collectively affect the development of technology clusters in a region. The findings of their study show that culture, formal and informal network, physical infrastructure, talent pool, university, government, professional and support services, and capital services are the important component for the development of entrepreneurial system.

While discussing the concept of EE development, Isenberg (2010) added a new prospective that there is no universal formula for EE development, however, public leaders should follow nine principles to build EE. These include stop emulating Silicon Valley, shape the ecosystem around local conditions, engage the private sector from the start, stress the roots of new ventures; do not over-engineer clusters, help them grow organically), emphasize ambitious entrepreneurship, favor the high potentials, get a big win on the board and institutions, tackle cultural change head-on, reform legal, bureaucratic and regulatory frameworks. These principles are claimed to lead to venture creation, the creation of ecosystem and a vibrant business sector Isenberg (2010).

The recent academic work on regional innovation and growth highlight the role of local conditions as well as bottom up process in the development of EE Boschma & Martin (2010). Furthermore, Isenberg (2011) highlighted the importance of six domains of EE, namely, policy, finance, culture, support, human capital and markets in a creation of EE. In similar vein, Spigel (2017) contends that EEs are the composition of cultural, social, economic, and political attributes with in a geographical territory that facilitate innovative start-ups development and encourage the infant entrepreneurs along with other stakeholders to take risks of starting and funding, otherwise supporting high-risk ventures.

2.3.2 Independent variables

The current study considers the attributes Spigel (2017) to find their relative importance in the EE development in two different contexts, Pakistan and Italy. These attributes include, supportive and risk-taking culture, history of entrepreneurship, worker talent, networking, mentors and role model, finance / investment capital, policy and governance, universities, support services, infrastructure, market accessibility. Furthermore, based on the findings of semi-structure interviews, the researcher added a contextual factor; social media in the contexts of Pakistan and Italy (see theoretical framework in section 2.3) which influences entrepreneurial activity in the regions.

2.3.2.1 Supportive culture and histories of entrepreneurship

The cultural domain deals with the perception of entrepreneurship in society, cultural attitude, and entrepreneurship related history Spigel (2017). Organizational researchers consider that culture is one of the crucial components Audretsch & Belitski (2016) in stimulating innovation and creativity Martins and Terblanche (2003). Generally, culture includes beliefs, values, norms, attitudes, symbols and stories. Cultural beliefs and histories of entrepreneurship are considered as the main attributes of the culture (Spigel, 2017; Stuetzer et al. 2014; Vaillant and Lafuente 2007). Cultural beliefs play a significant role in shaping attitudes about entrepreneurship Stam (2023) and can influence whether entrepreneurship is seen as a desirable or undesirable career path Kibler et al., (2013).

In some cultures, entrepreneurship is viewed as a standard part of an individual's career path, with a high social status attached to successful entrepreneurs. In these cultures, entrepreneurship may be seen as desirable and prestigious career choice (Audretsch, 2007; Hechavarria and Ingram, 2019). This helps create an environment surrounding the entrepreneurship that supports firm creation and encourages others to support risky entrepreneurial activities Ritsila (1999). In this regard, entrepreneurial culture is considered as one of the critical components of EE success Boutillier et al., (2016). In the study conducted by Neck et al., (2004), culture was the only element of the ecosystem that secured unanimous support as critical and valuable to the development of entrepreneurial ecosystem. Shared culture understandings either ease interfirm cooperation and facilitate knowledge sharing and firm mobility (Gertler, 2003; Henry, 2001) or hinders these kind of activities (Saxenian, 1994; Staber, 2007).

The lack of entrepreneurial culture in a region diminishes the positive effects of favorable regulations, availability of resources, entrepreneurial programs and financial support on creation of new firms Berbegal-mirabent et al., (2015). Notwithstanding, many contexts have institutions homogeneities and resource endowments, there are still substantial heterogeneities related to entrepreneurial outputs Sansone et al., (2021) due to the culture. While research on culture and entrepreneurship has traditionally focused on national-level cultural differences (Hayton et al., 2002; Hayton and Cacciotti 2013; Hofstede 1991), more recent research has highlighted the importance of understanding subcultures and cultural outliers within a given region or even within a specific entrepreneurial ecosystem (Fayolle et al., 2010; Liñán et al., 2015). This localized approach can provide a more nuanced understanding of how culture influences entrepreneurship and can help to identify specific cultural barriers or opportunities that are unique to a particular context.

Regional culture has significant influence on the evolution of entrepreneurial ecosystem Cohen, 2006) and also impact the entrepreneurial activities by shaping acceptable entrepreneurial norms and practices (Aoyama, 2009; Isenberg, 2011). Saxenian (1994) comparison of Boston's Route 128 and Silicon Valley highlights the importance of cultural nuances in shaping EEs. The pro-entrepreneurial attitudes and institutions in Silicon Valley helped to promote entrepreneurship, while conservative finance-driven culture in Boston hindered its growth Donaldson (2020). This suggests that cultural norms such as acceptance of risk and innovation play a significant role in determining the level of entrepreneurial activity in a particular region or ecosystem.

In addition, advantages of strong entrepreneurial culture include but not limited to that it assists entrepreneurs to support other individuals Lafuente et al., (2007), enhance trust Aoyama (2009), and promote the identification of entrepreneurial opportunities Stuetzer et al. (2014). Culture is widely recognized as a key attribute for entrepreneurial success in existing frameworks. For instance, Isenberg, (2011), Spigel, (2017), Stam (2015), World Economic Forum (2013) all emphasize the importance of culture in creating an environment that supports and fosters entrepreneurship. Supportive and risk-taking culture whether in terms of domains Isenberg, (2011), pillars World Economic Forum (2013), component Neck et al., (2004), Stam (2015) or attribute Spigel (2017) achieve unanimous support as beneficial and significant to the development of entrepreneurial ecosystem.

In line with literature we develop the following hypothesis:

Hypothesis 1a: H1a: The supportive and risk-taking culture will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 1b: H1b: The supportive and risk-taking culture will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.2 History of Entrepreneurship

Prominent histories of entrepreneurial success stories are an important part of cultural outlooks Feldman et al., (2005). Stories of successful local entrepreneurs is the source of inspiration for the younger entrepreneurs in the region Feld (2012). Just as importantly, local policy makers can mobilize these stories as part of larger entrepreneurship campaigns Nelles et al., (2005). This helps ensure a stable supply of new entrepreneurs and further legitimizes the status of risk taking within the region's culture. Isenberg (2011) considers presence of success stories one of the critical elements of successful entrepreneurial ecosystem. In similar vein, the research conducted by Mack & Mayer (2016) explained the impact success story visibility has on building entrepreneurship culture.

Hypothesis 2a: H2a: The history of entrepreneurship will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 2b: H2b: The histories of entrepreneurship culture will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.3 Worker talent

Worker talent refers to presence of workers who are willing to work at startups Spigel (2017). Human capital accessibility is one of the significant prerequisites to have a success in today's knowledge-based economy and is considered as to be important to attain competitive advantage (Audretsch et al., 2012; Lepak & Snell, 1999; Qian et al., 2012) and retain performance (Ambrosini, Bowman, and Collier 2009; Becker 1962; Mincer 1958; Wernerfelt 1984) for ventures. Human capital, which refers to the skills, knowledge, and experience of individuals is crucial for any business, and entrepreneurs often struggle to find and attract talented workers who can help them grow their ventures Spigel & Vinodrai (2021).

The survey conducted by Neck et al., (2004) underscores the importance of having access to a talented workforce in entrepreneurial success. According to the survey, 67% of founders identified the talent pool as a critical component of the entrepreneurial system, indicating that access to skilled and knowledgeable stream of workers is crucial to building and sustaining successful ventures. Several studies have investigated the relationship between the talent availability and accessibility and entrepreneurial activities. Bendickson et al., (2017) found that access to talent is positively associated with likelihood of entrepreneurial activity. Similarly, Huggins et al., (2017) argue that the availability of skilled workers is a key factor in influencing entrepreneurship in a region. It resulted that the availability and accessibility to talented workers has long been an element impacting the entrepreneurial activities.

In addition, even in advanced economies the growth and success of firms depend on the availability of talented workers Siepel et al., (2017). According to a research done by Inc. Magazine on the 500 fastest-growing companies in the country, "fast-growing company owners typically chose where to live based on personal ties and quality of life characteristics many years before they establish their firms" Mazerov & Leachman (2016). From this vantage point, entrepreneurial ecosystems can only thrive in the places where talent is drawn, not everywhere Moretti (2012). Moreover, (Qian et al., 2012; Acs and Armington 2004) argued that the presence of diverse and skilled group of workers perhaps is the most important element of effective EE. The third hypothesis is as follow:

Hypothesis 3a: H3a: The worker talent will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 3b: H3b: The worker talent will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.4 Finance / Investment capital

The availability, supply and accessibility of financial resources is crucial for business development and entrepreneurial economy (Stam 2015; Audretsch et al., 2022) and is considered as one of the fundamental components of entrepreneurial companies World Economic Forum (2013). Public and private financial institutions, such as government-backed institutions, commercial banks, and angel investors, are important sources of capital (Mubarak et al., 2019; Naghavi & Mubarak, 2019; Van Praag and Versloot, 2007).

In addition to these sources of capital, Benjamin et al., (2004) argued that state or community run loan programs are also considered as source of finance for entrepreneurs. These institutions may offer loans, grants, or other forms of financing that are tailored to the needs of entrepreneurs. Angel investors, in particular, are often individuals who have experience in entrepreneurship and are willing to invest in early-stage business in exchange for equity or ownership in the company Wright (2017). In addition to external funding sources, entrepreneurs may also rely on their own personal networks for support Wright (2017). Family and friends may provide financial assistance or other resources such as business advice, expertise, or connections that can be valuable to an entrepreneur. According to the research Daniels et al., (2016) that it is estimated that 50 % entrepreneurs approach their families or friends or colleagues for funding they need in their businesses. Isenberg (2011), underscores the importance of family and friends in providing early-stage funding for entrepreneurs. Arruda et al., (2015) similarly found that personal networks were a significant source of funding for entrepreneurs in Brazil. The presence of local investors deeply connected with the local entrepreneurial community is necessary to catalyze the growth of entrepreneurial firms. Brown & Mason (2017) argued that financial providers, including venture capital firms, business angles, accelerators and banks are vital for enabling the transfusion of resources into successful start-ups, calling them as 'ecosystem resource providers. The ecosystem cohesiveness help start-ups to overcome growth challenges for instance, to access the finance and building teams Spigel (2022).

According to Mujahid et al., (2019) that after human resource development, financial support, and industrial network relationships are equally the most crucial elements of EE. Several studies have examined and presented the facilitating role of various funding sources in supporting entrepreneurship in different contexts (Suresh & Ramraj, 2012; Nacu and Avasilcăi, 2014; Khalil and Olafsen, 2010). Neck et al., (2004) found that 53 % of the respondents (founders) agree that capital source was the fundamental component fueling the venture creations. This literature leads us to formulate us fourth hypothesis as:

Hypothesis 4a: H4a: The finance / investment capital will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 4b: H4b: The finance / investment capital will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.5 Network

This study's perspective of networks refers to presence of social networks that connect entrepreneurs, advisors, investors, and workers and that allow the free flow of knowledge and skills Spigel (2017). Social networks consist of informal network (friends, families, colleagues, and informal relations with similar high technology firms) and formal network (universities, capital sources, government, professional support services, talent and large companies) Birley (1985). Network in either form helps entrepreneurs to access resources, market and technological knowledge and market accessibility Hoang & Antoncic (2003). Neck et al., (2004) argue that components of formal network are crucial for entrepreneurial system and are necessary for its evolution and growth. The formal networks include research university, regional government agencies, professional and support services (e.g. lawyers, accountants, consultants, suppliers), capital sources (e.g. venture capitalists, business angels and banks), talent pool and large corporations (Neck et al., 2004; Feld, 2012; Spigel, 2017).

In addition, The Small Business Steward Study conducted in (2019) in Alberta underscores the importance of informal network. According to the study that nascent entrepreneurs who have limited business acumen are more likely to seek feedback and mentorship from their close contacts, such as family, friends, and colleagues. Due to lack of extensive experience in entrepreneurship, the entrepreneurs rely on their informal and personal networks for support and guidance. Furthermore, entrepreneurs without well-established network often experience difficulties in generating revenues and establishing their businesses. The Boulder study, conducted by (Neck et al., 2014) surveyed 702 entrepreneurs in the Boulder, Colorado area to get insights into the factors which contribute to the success of local EE. The study found that 67% of entrepreneurs identified the informal network as an important piece of the ecosystem. The existing SME literature suggests that SME owners and managers tend to rely on their existing strong networks for business support Mole & Capelleras (2018). In fact, ignoring the interconnected nature of the ecosystem elements can lead to perverse outcomes Isenberg (2010). Consequently, we cannot ignore the critical role that networks play in supporting and facilitating entrepreneurship in a region (Birley 1985; Prevezer, 2001). In the light of literature, we formulate our fifth hypothesis as follow:

Hypothesis 5a: H5a: The network will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 5b: H5b: The network will have a positive effect on the development of entrepreneurial secosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.6 Mentors and role models

According to Spigel (2017), mentors and role models are local successful entrepreneurs and business people who provide advice for younger entrepreneurs. The presence of mentors in a region increases the performance of entrepreneurs (Bosma et al., 2012; Ozgen & Baron, 2007) and overall firm formation and survival rates Lafuente et al., (2007). Spigel (2017) argued that among other attributes, mentors in the region provide resources that new local ventures could not otherwise access such as managerial experience. While entrepreneurs progress through business support ecosystem, they need specialized business services from well-connected and educated mentors Small Business Steward Study (2019). The sixth hypothesis is as follow:

Hypothesis 6a: H6a: The presence of mentors and role models will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 6b: H6b: The presence of mentors and role models will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.7 Policy and Governance

Policy and governance refer to state-run programs or regulations that either support entrepreneurship through direct funding or remove barriers to new venture creation Spigel (2017). The economic and political context of a region significantly impact entrepreneurship, and laws and policies play a crucial role in shaping this context. The context may not only consider legal barriers to business formation but also develop effective tax systems or entrepreneurship supportive programs, make local networks, or launch development programs (Huggins & Williams, 2012; Mason & Brown, 2013; Spigel, 2017). Generally, laws and policies include tax reliefs or incentives, tax rates, ease of business formation, and making more transparent and consistent policies to promote entrepreneurship. Some researchers emphasized that governments and national laws must play encouraging role by providing supportive environment to the companies to promote entrepreneurial activity (Isenberg, 2011; Suresh & Ramraj, 2012; Prodan 2007; Feld 2012). Isenberg (2010) argued that eliminating administrative and legal barriers to venture formation is a better way to go than creating incentives to overcome barriers. The seventh hypothesis is given as follow:

Hypothesis 7a: H7a: The policy and governance will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 7b: H7b: The policy and governance will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.8 Universities

Universities play crucial role in entrepreneurial ecosystem by providing training to new entrepreneurs and produce new knowledge spillover Spigel (2015). Reichert (2019) sees universities as "orchestrators" of local innovation networks; thanks to their efforts to improve human capital quality, produce impactful research, and establish collaboration networks with other players. Beyond that, universities are being engaged to create their spin-off firms, which yield economic (Meoli et al., 2013; Walter et al., 2006) and societal benefits Fini et al., (2018).

The importance of a research university for the development of an entrepreneurial system has been under discussion since Frederick Terman from Stanford helped launch Silicon Valley by supporting Hewlett and Packard (Bahrami and Evans 1995; Bruno and Tyebjee 1982). There are many ways through which university can support the system, for instance, developing talented graduates, generating leading-edge technology, and providing faculty as consultants. Within the formal network, the university was among the most commonly cited reasons (73 percent) for the development of the entrepreneurial system Neck et al., (2004).

Universities play different roles in developing and supporting entrepreneurial ecosystem, for instance, they are considered as a guide, breeder of entrepreneurship, and also playing the role of catalyst (Hayter, 2016; Miller & Acs, 2017; Nicholls Nixon et al., 2021). In addition, the world-class universities play a pivotal role in the development and sustainability of renowned and well-established entrepreneurial ecosystems, for instance, Silicon Valley, Route 158, and Cambridge UK Audretsch & Belitski (2013). This leads us to formulate our eighth hypothesis as follow:

Hypothesis 8a: H8a: The universities will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 8b: H8b: The universities will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.9 Support Services

Stam (2015) describes support services as the supply and accessibility of intermediate business services. Entrepreneurs in time accessibility to these services reduce the time to enter to innovation market Stam (2015). The presence of entrepreneurship support organizations (ESOs) for instance, universities, professional services sector including consultants, financial, marketing, legal advisors and entrepreneurs' collaboration with these ESOs and communication and cooperation with incubator and accelerators signal the existence of sustainable EE (Isenberg 2011; Neck et al. 2004; Nacu and Avasilcăi 2014; Khalil and Olafsen 2010; Cloitre et al., 2023). In similar vein, support services, for instance, among others, facilitating access to university talents, accessing technical and managerial talents and skills in every sector, professional services such as financial, consulting, and legal services, facilitating cooperation and communication between entrepreneurs and other communities among others, are the main reasons for the formation of entrepreneurial ecosystem (Feld 2012; Cohen 2006; Isenberg 2011; Neck et al. 2004). Such EE provides an opportunity for entrepreneurs to grab the educational opportunities through training programs, accelerator programs and workshops provided by ESOs that covers variety of topics, for instance, business and marketing plans Small Business Steward Study (2019). Based on the importance of entrepreneurship services highlighted in previous literature the researcher formulated the ninth hypothesis as:

Hypothesis 9a: H9a: The support services will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 9b: H9b: The support services will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.10 Infrastructure

Infrastructure refers to availability of sufficient office space, telecommunication facilities, and transportation infrastructure to enable venture creation and growth at low cost (Neck et al., 2004; Audretsch, 2017). Efficient infrastructure includes certain features such as ease of access to physical resources, transportation, land and space at low cost, telecommunications, strong information networks, databases that lead to the development of entrepreneurial ecosystem (GEM 2014; Nacu and Avasilcăi 2014; Prodan 2007). A developed physical infrastructure can create opportunities for entrepreneurs to come together and collaborate, which further, can facilitate the development of geographic community of common interest around new ideas and technology that leads to the creation of what is known as “third space” in the ecosystem Stam (2014), where local and regional stakeholders such as, researchers, regional authorities, educational institutions, public leaders can come together to share knowledge and resources and collaborate on new initiatives.

Additionally, the improved physical conditions and other amenities of a region can attract high quality labor, create new opportunities for collaboration and innovation resulting in new venture and industries creation that further contribute to economic growth and development (Audretsch and Belitski 2013, 2015; Audretsch et al., 2016; Belitski & Desai, 2015; Glaeser et al., 2012). Without efficient public transportation and the ability to connect research and technology hubs with the core business community, entrepreneurs may struggle to access the resources they need to thrive.

While Tampa has many positive factors that contribute to its entrepreneurial ecosystem, such as a large number of support organizations and entrepreneurial programming (Startup Weekends, Startup Week, co-working spaces, Small Business Development Centers), its poor transportation infrastructure is a major impediment to its growth and development Kritzer (2016). Similarly, infrastructure has been identified as a hindrance to the growth and prosperity of Estonia's entrepreneurial ecosystem. While Estonia has made significant investments in technology infrastructure, such as high-speed internet and e-government services, other areas of infrastructure, such as transportation and physical connectivity, remain underdeveloped, limiting the ability of entrepreneurs and businesses to access resources and collaborate on new projects (Kshetri 2014; Velt, Torkkeli, and Saarenketo 2018).

Overall, while investments in entrepreneurship support organizations and programming are important for the growth and development of entrepreneurial ecosystems, it is also critical to address infrastructure challenges, such as poor transportation and physical connectivity, in order to create an environment that is conducive to innovation, collaboration, and economic growth. Our ninth hypothesis is formulated as:

Hypothesis 10a: H10a: The infrastructure will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 10b: H10b: The infrastructure will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.11 Market accessibility

Market accessibility refers to presence of sufficient local opportunities to enable venture creation and unimpeded access to global markets Spigel (2017). The markets include both local markets and international markets (World Economic Forum 2013; Isenberg 2011; Prodan 2007; Suresh and Ramraj 2012; Arruda et al. 2015). The access to local markets and international markets plays a key role in creating opportunities within an entrepreneurial ecosystem. (Spilling 1996; Spigel, 2015; World Economic Forum, 2013) argued that the customers' needs create opportunities for new business ventures and consequently resulted in the development of networks that support entrepreneurs in obtaining technology, getting market knowledge, acquiring resources like investments, accessibility to customers and suppliers and thus improve their own performance.

South Korea is a good example of how access to markets can support or hamper the entrepreneurial ecosystem. South Korean entrepreneurs' diaspora-based networks in Europe and the United States not just make them able to access resources but also, they develop out their markets Kitching & Smallbone (2009). The eleventh hypothesis is formulated as follow:

Hypothesis 11a: H11a: The market accessibility will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 11b: H11b: The market accessibility will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

2.3.2.12 Social Media

Social media (SM) refers to an online platform where any kind of exchange happens between two businesses or their stakeholders Nicholson (2011). With recent development and improvement of computer technologies, social media is considered as one of the most vastly discussed topics in today's corporate climate. In fact, SM causes the business environment to change as companies attempt to use SM as a strategic tool to improve performance and gain a competitive edge. (Ahmad, Ahmad, & Abu Bakar, 2018; Singla & Durga, 2015). Companies in the present day are necessary to improve their SM usage abilities because SM is a good medium for marketing campaigns, advertisements, creating and maintaining consumer relationships, and providing an accessible channel for information sharing with SM connected stakeholders Tajvidi & Karami (2017).

Web 2.0, generally referred to as the next generation of Internet-based applications, was first used by O'Reilly (2005) to describe interactions between businesses and the general public through social media on online channels like Twitter, Facebook, Instagram, Snapchat, YouTube and LinkedIn, among others. Recent studies like those by (Ahmad, Ahmad, and Abu Bakar, 2018; Tajvidi and Karami, 2017; Agnihotri et al., 2016; Beier and Wagner, 2016; McCann and Barlow 2015; Durkin et al., 2013) have found that businesses can use social media (SM) as a tool to enhance customer communication and gain a competitive advantage.

Additionally, SM has a number of benefits, including improved word-of-mouth marketing Chen et al., (2011), increased business sales Agnihotri et al., (2012), improved brand recognition De Vries et al., (2012), connecting job seekers and job providers Spigel (2021) and improved social support from clients Ballantine & Stephenson (2011). Furthermore, entrepreneurs use SM for a variety of purposes, including mobilizing financial resources Shane (2012), establishing connections with prospective investors in an effort to secure funding (Lugovi and Ahmed, 2015; Banerji and Reimer, 2019), and networking with other businesses Jin et al., (2017).

Social media is also used to consult experts in knowledge production Papa et al., (2018), the innovation process (Soto-Acosta et al., 2017; Scuotto et al., 2017), and innovation capabilities Riverola & Miralles (2018) which enables users to discover more opportunities Riverola & Miralles (2018). It is obvious that how well social media connects the important players in the entrepreneurial ecosystem in numerous ways. This can include marketing, recruiting, financing, and crowdsourcing. As a result, it is necessary to establish channels of communication via social media between businesses and the entire ecosystem. Therefore, the research formulated the twelveth hypothesis as

Hypothesis 12a: H12a: The social media will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 12b: H12b: The social media will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

Chapter 3

Research methodology

3.1 Introduction

According to Bryman and Bell (2015) that the adoption of well-designed research methodology based on scientific consideration is mandatory while conducting any kind of research study. However, there are no universal standards for conducting research and follow a uniform methodology. Instead, the choice of the appropriate research method and approach depends on the study's objectives and aims Saunders et al., (2009). On the basis of this argument, this chapter presents the research methodology and methods used in this study in order to achieve the aims and objectives of this research study discussed in Chapter 01. The current study follows mixed methodology. This study used both qualitative and quantitative methods to collect appropriate data in order to explain the relationships of the variables explained in theoretical framework chapter 02. This chapter also explains the research instrument, sampling techniques, scale purification process, techniques used to prepare data for analysis and data analysis techniques in detail.

Furthermore, this chapter begins by reviewing various research philosophies and presents a detailed discussion on the philosophical underpinnings of the research study in hand. It then discusses the philosophical foundation of the current study and provides a comprehensive analysis of the methods and techniques utilized in modern research. It also reviews the literature on the subject.

3.2 Research philosophy

Before conducting research, it is important that a researcher should have a good understanding of the various research philosophies that guide the research Guba & Lincoln (1994). Following this argument, the current study went through different research philosophies before choosing an appropriate research methods and methodology. Proctor (1998) stated that a misguided selection of a research philosophy can lead to the failure of a researcher to achieve his or her goals. In similar vein, Denzin and Lincoln (2011) argue that choosing the right research paradigm should be considered on priority basis before selecting the appropriate method. Easterby-smith et al., (2008) argued that failing to consider the philosophical assumptions when developing a research project can have a negative impact on its quality. They presented four reasons why this is important.

- This process can help to clarify the design of a research project. It involves considering the various requirements of the investigation and how the data collected will be interpreted and used. This will provide helpful answers to the questions that will be asked regarding the findings.
- It should also help the researcher avoid going through too many blind alleys. This will allow them to identify the limitations of certain approaches.
- Through a deeper understanding of philosophy, the researcher can also identify, create and even designs that can be outside of their own past experiences.
- This philosophy can also help the researcher design research programs that are appropriate for certain knowledge structures.

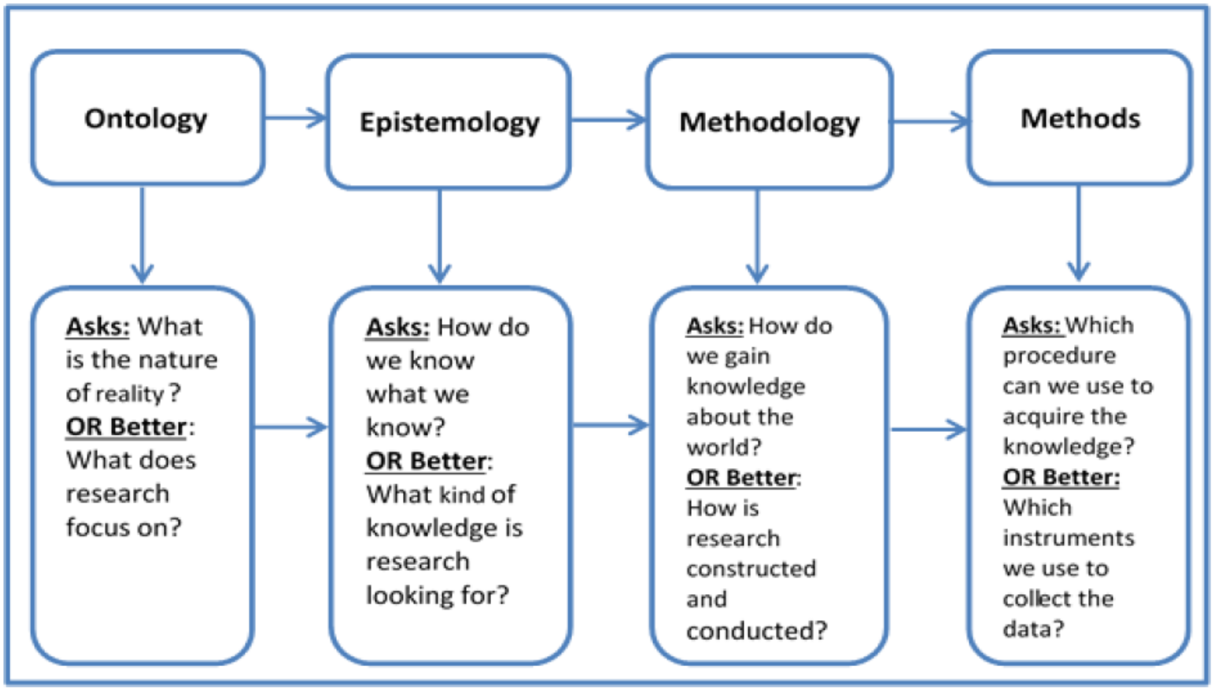
In this regard, researchers have presented various research philosophical assumptions Burrell and Morgan (1979). In fact, the decisions regarding research methods and methodology, data collection methods, the way research would be conducted are significantly influenced by research philosophy Denzin and Lincoln (2011). Nonetheless, the discussion regarding research philosophy enables us to consider the study's epistemological and ontological perspectives, among other philosophical underpinnings. For instance, when it comes to analyzing social sciences, it is important to select an appropriate ontological and epistemological stance. In social sciences research, the ontology of social entities is usually focused on the nature of social groups Bryman and Bell (2015). According to Crotty (1998), ontology is concerned with the study of reality's structure and what it is. Saunders et al., (2020) defined ontology as the scientific study of "reality", and focuses on the question such as "what is". In social sciences, the main ontological question is whether social reality is "hard form" that has an objective entity external to social actors, or whether social reality is the outcome of social construction based on the perception and actions of the social actors Bryman and Bell, (2015).

On the other hand, according to Bryman and Bell (2015) that epistemology is concerned to the question, "What knowledge should be regarded as acceptable in a discipline". Guba and Lincoln (1994) defined the epistemological question of a study as "What is the link between know and knower, and what can be known? It is concerned with how we know the world and what is the relationship between the investigator and the known". The fundamental focus of epistemological concerns in this context is whether or not social reality can be explored using the same principles and procedures as the natural sciences Bryman and Bell (2015). It is further argued by the researcher that stance of epistemology of replicating the natural sciences is consistently related to positivism doctrine, an epistemological stance.

Positivism is considered as the objectivist epistemology taking the world as external to a researcher and including the phenomenon that can be seen Corbetta (2003). On the other hand, subjectivist epistemology, also referred to as "interpretivism" or "constructivism," is developed on the notion that social reality is socially constructed rather than objectively determined Crotty (1998). Although all epistemological assumptions have advantages and disadvantages of their own, selecting the proper epistemological stance has a considerable impact on the selection of an appropriate research methodology and research methodologies. In addition, the nature of the study's research objectives and questions largely determines the appropriate epistemological perspective Saunders et al., (2012). The ontological and epistemological underpinnings of a study lead a researcher to various interpretations of the same social reality.

It is crucial for a researcher to comprehend their philosophical underpinnings and how their worldview will influence the entire research process. In other words, the ontological and epistemological assumptions that researchers make will have a significant impact on the way they conduct their research Sarantakos (2005). The researcher must therefore make a clear connection between the nature of reality (researcher's ontology), the nature of knowledge (researcher's epistemology), and how to acquire knowledge about it (researcher's methodology). The relationship between these major terms, for instance ontology, epistemology and methodology along with their theoretical foundations is depicted in the following figure 3.1.

Figure 3.1shows the relations between ontology, epistemology, methodology and methods



Source: Adopted from Sarantakos (2005).

The various philosophical prescriptions presented in social science research are closely related to the research paradigms and basic belief systems that are based on epistemological, methodological, and ontology-based assumptions Guba and Lincoln (1994). According to Sarantakos (2005) that the various philosophical prescriptions presented in social science research are often packaged in research paradigms that guide the study of social science. The following section aims to provide a comprehensive overview of the various research paradigms that are used in social science analysis. It also includes the appropriate research technique that is being utilized in the current study.

3.3 Research paradigms

According to (Creswell, 2009), selecting the right research paradigm is crucial since it affects how research is conducted. In fact, it is important to note that it is the paradigms which defines the social science research rather than the methodology Hiles (1999). Senge and Scharmer (2008) defined paradigms as "mental models" and state that they are "…deeply established assumptions and generalizations that impact how the people observe the word and act". The most comprehensive definition of a paradigm is provided by Guba and Lincoln (1994) who describes it as "a set of basic beliefs that deals with ultimate or first principles and represents a worldview that defines, for its holder, the nature of the world, the individual's place in it, and the range of possible relationships to that world and its parts." In a similar vein, a paradigm is a group of presumptions that explain how scholars view the world, letting them know "what is significant, what is legitimate, and what is reasonable" (Kuhn, 1970; Patton, 1990). In addition, Farber (2001) contends that a paradigm is a philosophical stance taken by a social scientist that influences his choice of methodology and the research process.

Research in social science is however, characterized by paradigmatic pluralism. Due to the multitude of definitions of each paradigm, which have led to the creation of several schools of thought and thus resulting in what is known as "paradigm wars". This is due to the fact that fundamental tenets of worldviews or ideas must be accepted purely on the basis of faith and that there is no method to determine whether they are ultimately true Guba and Lincoln (1994). However, Guba and Lincoln (1994) give a four-fold classification of the main paradigms employed in social science research, namely, positivism, post-positivism, critical theory, and constructivism or interpretivism.

According to positivism's proponents, reality is something that exists outside of a researcher's field of study, and it is assumed that both the observer and what is being observed are not dependent on one another and cannot affect each other (Guba and Lincoln, 1994; Easterby-Smith et al., 2008). Auguste Comte, a French philosopher, is credited with introducing this paradigm by using the phrase for a philosophical stance Cohen et al., (2013). According to Matthews and Ross (2010) and Easterby-Smith et al., (2008), the different characteristics of positivism include:

- Objective standards (such as, what can be observed and recorded) rather than subjective understandings (such as, human beliefs and understandings) are used to determine the reality of social phenomenon.
- Existing theories are used to develop hypothesis and then data are collected in order to test the developed hypothesis.
- Identification of causal explanations and fundamental laws that can be used to elaborate the symmetries in human social behavior is the main aim of social scientist.
- In order to be quantified, aspects of social phenomena are operationalized.

In addition, the emphasis on the quantification of science Guba and Lincoln (1994) has encouraged a substantial number of social science researchers to accept positivism as philosophical stance. This adoption of positivism can be justified by several reasons such as, the belief that only quantitative data is highly valid and produce high quality of research Sechrest and Sidani (1995), the stance of positivist allows the replicability of the research findings in different contexts and studies Guba and Lincoln (1994) and the easy availability of a different set of mathematical and statistical tools and models in this approach Saunders et al., (2012). Notwithstanding, positivism on the other hand, faces some criticisms for instance, the positivism notion that reality is external to researchers is criticized by many scholars assuming that it is a misleading approach to be followed while conducting a research. In this regard, Corbetta (2003) contends that due to the basic knowledge acquired during the research process, it is impossible for a researcher in social science to remain isolated from society and its beliefs, values, and experiences.

On the other side, advocates of the constructivism paradigm, also referred to as the naturalist, constructivist, interpretivist, and phenomenologist paradigm, contend that social phenomena are inherently meaningful and are shaped by the mental conceptions that social actors hold and attach to them Novatorov (2014). According to constructivists, social and natural science research require separate approaches due to the significant differences between the two fields of study. In this regard, the constructivists deny nomological explanations and argue that in social sciences, causality, generalizations, predictions, and mathematical laws have rare or no significance Novatorov (2014).

Taking advantages and overcoming the weakness of positivism and constructionism, post-positivism paradigm is positioned between these two paradigms. In order to answer the challenges encountered by positivism paradigm, the post-positivism was developed to answer them Lincoln and Guba (2000). Post-positivism is considered as an alternative approach to the traditions and basics of the positivism paradigm for conducting research Crossan (2003). According to Crossan's further justification, post-positivism does not view reality as a rigid entity but rather believes that reality is created by those engaged in the research. In similar vein, Moshell and Hughes (1994) argued that a reality does not exist in vacuum, context has impact on its structure, therefore numerous constructions of reality are possible. In social sciences many researchers agree with the notion that post-positivist is an appropriate approach. In the light of the discussion regarding different features of research paradigms in this section, the proceeding sections of this chapter will highlight the process of selecting the suitable research paradigm for the research in hand.

3.3.1 Post-positivism approach for this study

As said in previous section that there is no appropriate approach that can be suitable for any type of research. According to Saunders *et al*., (2012) that the choice of an optimal research approach is based on the research questions the researcher is trying to answer. In this context, the research in hand intends to find out the relative importance of each EE attribute Spigel (2017) in the development of EE in two different contexts, for instance, developing country (Pakistan) and developed country (Italy) simultaneously. As illustrated in Chapter 1 and Chapter 2 that there is scarcity of research on EE especially in developing countries. Furthermore, as per the knowledge of the researcher there is no such scale available to measure the magnitude of the relationship of the dependent variable (EE development) with that of independent variables (cultural attributes, social attributes, material attributes, security attribute, social media).

Accordingly, in the context of this current research, depending only on existing literature for the generation of hypothesis and development of scale to collect the data to prove the hypothesis true is not a viable choice. Therefore, a vigorous in-depth investigation of the phenomenon (i.e. EE drivers from entrepreneurs' (SMEs) perspective) is needed as a starting point to develop a valid and reliable scale and generate suitable research hypotheses as well as a reliable formulation of the research problem. Following this, a qualitative study of EE stakeholders for instance, academic, representatives from government organizations, technology transfer offices, chamber of commerce, entrepreneurship supporting organization (ESOs) and entrepreneurs, in both contexts; Pakistan and Italy will be very helpful. Afterwards, a quantitative method will be useful to collect the data from entrepreneurs (SMEs) using the developed scale to measure the effect of EE attributes on EE development. Accordingly, the current research will employ both subjective and objective descriptions of the phenomenon that use both quantitative and qualitative methods. In this context, Guba et al. (1998) contends that the post-positivism approach tends to examine the cau.se and effect relationship among hypotheses by *"investigating the inquiry in a more natural setting, collecting more situational information, and introducing discovery as an element of inquiry"*. In addition, according to Letourneau and Allen (1999), post-positivism employs both qualitative and quantitative methods, which Guba et al., (1998) refers to as critical multiplism. Cook (1985) stated that following Guba and Lincoln perspectives, multiplism refers to the reality that research can be approached from various aspects in order to define and choose the research questions, methods, and analysis. Therefore, post-positivists support using a variety of methods, observations to explore the inquiry which may involve the use of both qualitative and quantitative methods.

Considering the above-mentioned arguments, for the research in hand, post-positivism is the most suitable and appropriate approach to apply. This can be justified by two main reasons; First, it is suitable since the aim of this research is to identify EE major drivers and developing scale as a starting point towards establishing a cause and effect relationship between the different constructs proposed in the theoretical framework (see chapter 2). Secondly, the researcher follows a triangulation approach for the current study which falls into a post-positivism paradigm. Furthermore, it uses multiple methods from positivist and constructivist paradigms El-Gohary (2009).

3.4 Research methods and methodologies

The way in which a study is carried out is referred to as research methodology. Marczyk et al., (2005) explains research methodology as a set of principles and procedures that are used by researchers in order to administer the research. Saunders et al., (2012) stated that it is a systematic way of describing, explaining, and predicting phenomena. However, Guba and Lincoln (1994) provide a thorough definition of research methodology as: "How might the inquirer (the would-be knower) go about finding out whatever he/she believes can be known? "*It focuses on how we acquire knowledge regarding the world and indicates which research techniques are considered appropriate for collecting valid empirical evidence.* Research methods, however, refer to the technical techniques employed to conduct research Mcgregor & Murnane (2010). In contrast, Bryman (2012) contends that a research method is only a way for gathering data. The most dominant research methodologies used in social science and humanities research are quantitative and qualitative Bryman and Bell (2015). Furthermore, Sarantokas (2005) argues that social science research may be carried out using either quantitative or qualitative approach.

3.4.1 Quantitative research

The quantitative approach is one of the most widely used approaches to conduct social science research. It emphasizes the use of quantitative techniques to collect and analyze data, and it also puts a lot of trust in the numbers that represent concepts Bryman (2012). Quantitative research integrates the practices and norms of natural scientific models and of positivism in particular, and views social reality as an external, objective reality Bryman (2012). Harwell (2011) talked about the various advantages of using such techniques. These include the researcher's ability to maximize objectivity, generalizability, and replicability of the results. There are various types of research methods identified by researchers that can be used for conducting quantitative research. Some of these include descriptive and correlational analysis, survey research, and clinical trials. The choice of a research technique depends on the type of questions that the researcher is trying to answer Saunders et al., (2012).

Along with the advantages, quantitative research has also some disadvantages. Phillp (1988) argues that the quantification aspect of quantitative research can provide a false sense of objectivity because it involves an artificial separation of the researcher from inquiry. This separation occurs when investigator rely on the numerical data to make claims about the world, without considering the subjective nature of their own perspectives. It is further stated that people are often used as objects of interest in the research without taking into account the meanings and values of individuals. Another issue with quantitative research is that it focuses on the appearance of things rather than the actual situation in which they are being lived. This has been regarded as a disadvantage to the method. It has also been suggested that precautions should be taken when conducting such studies Philip (1998).

3.4.2 Qualitative research

Instead of focusing on the numbers in data collection and analysis, qualitative research focuses on the observations and words Bryman (2012) and also, tries to focus on describing people and research phenomenon in natural settings Amarantunga (2002). Furthermore, this method tends to emphasize the development of theories instead of testing them. According to Guba and Lincoln (1994), that interaction between the inquirer and the object of inquiry leads to jointly developed findings within the framework of the situation, which shapes the inquiry. This further suggests that reality does not have existence prior to the investigation, and it ends when the focus of the investigation is no longer focus on it Sale et al., (2002).

Like quantitative research, qualitative research has several numbers of methods used to conduct the research. These include, case studies, focus groups, in-depth interviews and participant observation Harwell (2011). Just like quantitative research methods, the type of research problem a researcher intends to solve decides about the selection of qualitative research methods. Notwithstanding, the above-mentioned advantages, there are some pitfalls in using qualitative research. Denzin and Lincoln (2011) stated that qualitative research can sometimes produce fiction instead of science. Moreover, Christians and Carey (1989) argues that qualitative research fails to meet the essential requirements of conducting research because it contains researcher bias. Furthermore, lack of generalizability of results across different contexts is another disadvantage of this kind of research Denzin and Lincoln (2011).

3.4.3 Mixed methods research

While mixed research method is a new trend in social science research, it has remained the center of attention of many researchers Tashakkori & Teddlie (2010). Greene (2008) contends that *"I believe that the mixed methods approach to social inquiry has the potential to be a distinctive methodology within the honored traditions of social sciences".* According to him, the rationale behind the movement toward the use of mixed methods is that there is no single method that can effectively solve the problem Denzin (1978). This is because relying on one method is more prone to error Sekaran (2003). Additionally, according to Saunders et al., (2009), conducting research on the same phenomenon using different methods can lead to better valid and reliable results than using mono-method research. However, this is not the case for every study. Mixed methods are not superior to the mono-method approach (Saunders et al., 2012; Collis and Hussey, 2009).

As different researchers have defined mix-methods research differently, therefore, there is no uniform definition of the mix methods research. More work is needed to be done to define and explore the topic, and is important to continue the discussion on this topic Tashakkori & Creswell (2007). According to Johnson et al., (2007) mixed methods research is an approach that combines the elements of both qualitative and quantitative methods to study social phenomena in question in more detail.

Furthermore, Tashakkori and Creswell (2007) stated that mixed methods research incorporates both quantitative and qualitative research methods into a research methodology of single program of inquiry. This allows researchers to collect and analyze the data, integrate findings, and develop conclusions. However, researchers have noted a technical distinction between mixed methods, which integrate quantitative and qualitative approaches, and mixed methods, which involve the collecting and analysis of quantitative and qualitative data. For example, according to Tashakkori and Creswell (2007) that both approaches look similar, but a closer look shows that the former focuses more on methodology, while the latter on methods.

Similarly, Rocco et al., (2003) noted that mixed methods combine the technical and theoretical features of both qualitative and quantitative approaches. Harrison et al., (2011) noted that many researchers in the field of social sciences disagree with the terms used to describe mixed methods. These include multi-method, mixed research, and integrative. According to the Handbook of Mixed Methods (2010), which was released in 2010, the two terms are clearly defined when it comes to the use of both qualitative and quantitative data in research. Multi-methods research, on the other hand, involves the use of multiple quantitative techniques such as surveys and questionnaires.

3.5 Selecting research methodology for this study

The study in hand argues that there is no universal methodology or method, because every method or methodology has certain limitations. Therefore, a research method or methodology that best fit to answer the questions of the current study will be employed. In this regard, the mixed methodology based on qualitative and quantitative method is the most appropriate and feasible methodology to examine the EE attributes in two contrast contexts. The logic behind this choice is based on what Denzin (1978) states as: *"no single method ever adequately solves the problem"* and mono-method approach is more vulnerable to error related to that method Sekaran (2003). Therefore, the current study followed mixed method, in which both qualitative and quantitative methods were used to collect the data by employing semi-structured interviews and a questionnaire survey to answer the research questions (as discussed in chapter 1) proposed in the study.

In this context, the current study consists of two phases. In first phase, semi-structured interviews were used to collect the data from different stakeholders such as academic, entrepreneurs, representatives from chamber of commerce, entrepreneurship supporting organizations (ESOs). In addition, this phase also developed and validated the survey instrument used in the current study. In the second phase, the researcher conducted the self-administered questionnaire survey to examine the relationship between different variables. This mixed method enabled the researcher to thoroughly examine the EE attributes in two different contexts.

3.5.1 Data collection methods used in the current study

As discussed above that this research study uses both qualitative and quantitative methods to examine the EE attributes in developing (Pakistan) and developed (Italy) contexts. In this regard, to examine the appropriateness of the EE attributes contribution in the EE development in contrast contexts, a qualitative data was collected by employing semi-structured interviews with different EE stakeholders in both contexts. In the next stage the questionnaire survey was used to examine the relationship between variables. The details regarding these methods are mentioned as under:

3.5.2 Semi-structure interviews

The main aim of conducting semi-structured interviews in this study was to explore and deeply understand the contextual factors that influences EE development in two different regions. This helps the researcher in understanding the answers to the questions "how" and "why" which seems impossible to find solutions to these questions by just relying on questionnaire survey. Therefore, semi-structured interviews were the most suitable option for the study in hand, particularly when the study intends to explore the factors that affect EE development in less researched area (developing countries) as well as in developed country (Italy) by involving the most relevant people in EE.

3.5.3 Questionnaire survey

In the second of phase of this study, the researcher used the questionnaire survey to collect the data from the entrepreneurs (SMEs) in order to investigate the relationship between different constructs which are under consideration in the study (Appendix A and B**)**. In this regard, the current study followed the postal (mail) questionnaire survey method in the context of Pakistan after taking the pros and cons of the method under consideration. Since the respondents (entrepreneurs / partners / managers) were very busy in their routine tasks, therefore, the postal (mail) questionnaire offered them the discretion to work at their own pace Saunders *et al*., (2012). In addition, postal mail questionnaire allows you to distribute large number of questionnaires at low cost Churchill *et al*., (2000). Also, due to absence of interviewer in using the postal mail questionnaire, the interviewer bias due to interviewer effect can be alleviated. Last but not the least that the postal questionnaire survey guarantees the confidentiality which encourages the respondents to answer honestly.

Notwithstanding, the merits of postal questionnaire survey, there are some demerits linked with this method including, lower response rate, risk of missing data, and it is difficult to ask questions on complex questions. However, certain actions were taken in order to minimize the effect of these weaknesses and therefore, enhance the reliability and validity of the results. Firstly, each and every questionnaire was equipped with a detailed covering letter describing the objectives of the research, reasons behind the selection of the respondents, and guaranteeing the participants about confidentiality of the information they have provided. In addition, the respondents were clearly instructed on how to fill out the questionnaire. While the researcher himself collected majority of the questionnaires from urban areas (main cities), however, for remote areas which were not easily accessible questionnaires were sent with a freepost return envelope to enhance the response rate. In addition, reminder phone calls were made to the respondents who failed to complete and return the questionnaire on time.

In Italy, the researcher faced certain barriers in collecting the data through postal questionnaire method. Therefore, the researcher used drop-off / pick-up (DOPU) method, also known as "drop and collect method" to collect the data in the Italian context. In this method, the researcher or the team hand delivered the survey instruments to target respondents and then returning to collect the completed questionnaires. For DOPU method the researcher visited the SMEs and also outsourced the services of an individual who was familiar with Italian language as well as had geographical know-how of the region. In this regard, the addresses of SMEs were derived from the population frame provided by Chamber of Commerce, Campobasso. The personal interaction with respondents in this method leads to higher response rate (Allred and Ross-Davis 2011; Riley and Kiger 2002).

3.6 Designing the questionnaire and scale selection

This section explains the survey instrument development process. In the context of the current study, the research instrument was required for each context to examine the relationship between variables (see theoretical framework discussed in chapter 2). Therefore, the research instrument was developed which was then used by the researcher to collect the data from the respondents to answer the research questions of the current study.

The researcher developed the research instruments and used them to collect the data to investigate the relationship between the variables (e.g. independent and dependent variables) of the current study. The extensive literature review reading accompanied by qualitative study resulted in the identification of contextual EE attributes (as shown in theoretical framework). This also helped in the generation of items/questions for the research instrument. This research instrument was developed on the basis of theoretical framework. The questionnaire covered the questions regarding each variable mentioned in theoretical framework. Additionally, the questions regarding the gender, age and education of the respondents were asked in the questionnaire. Individual questions were developed with high concentration and focus in order to guarantee the data collected enabled the researcher find solutions to the research questions. In this regard, questions were very simple, direct, short, and simple to ensure that the right data was collected.

In addition, a keen observation was made to avoid questions that may have led to misunderstanding and confusion or the questions with double meanings. Furthermore, to improve the questionnaire validity, a great care was taken to enlist the questions with clear wording and terms that are likely to be familiar to, and understood by, the participants. Thus, clear instructions were given to the participants in order to avoid any misunderstandings or confusion.

3.6.1 Scale development

According to Churchill and Iacobucci (2009), measurement scales are "the rules for assigning comment to objects to represent quantities of attributes". In this regard, the researcher generated valid and reliable items to measure the theoretical constructs, derived from the extensive literature review and qualitative study's findings in the first phase. The extensive EE literature and the semi-structured interviews in both contexts helped the researcher to develop a scale including more reliable and valid items. Afterwards, certain techniques recommended by Churchill (1979) and Hair *et al*., (2014) were used to purify the scale. The figure 3.2 shows the process adopted to develop and specify the measurement

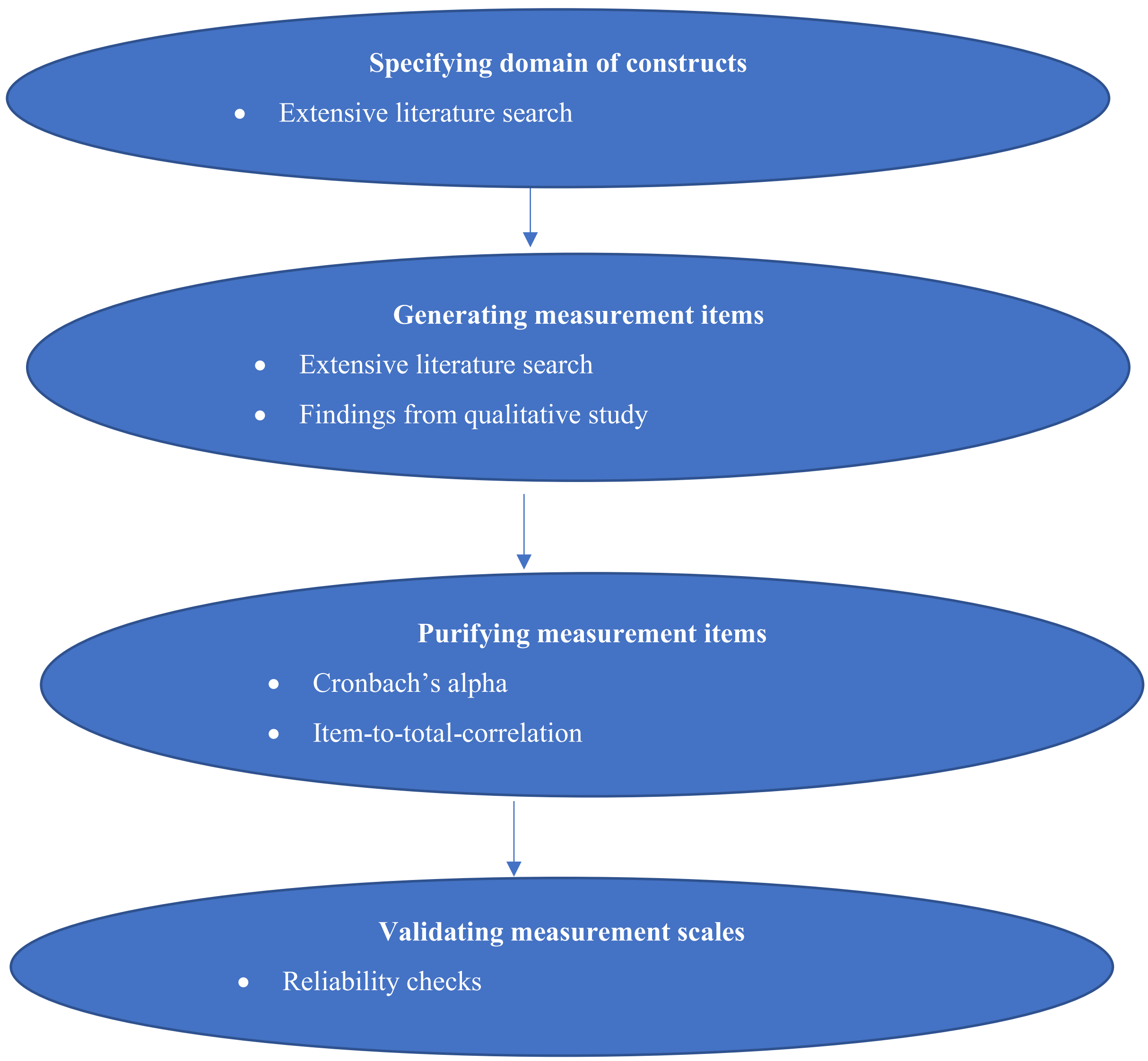


Figure 3.2 Scale development process adopted from Churchill (1979)

There are total 12 independent and dependent variables in Pakistan and Italy contexts, used in the current study. These variables are latent constructs which we cannot measure directly. So, the researcher operationalized these latent constructs by measuring them through multiple observed indicators for each construct. The Likert scale was then used to measure the observed indicators. This scale is considered as a suitable interval scale to measures variables in the social sciences. In this regard, Churchill (1979) argues that multiple indicator scales perform relatively better than single indicator scales. Also, utilizing multiple indications to measure the scale improves its validity and reliability (Peter, 1979). This study used a five-point Likert scale (with 1 equaling "strongly disagree", 2 equaling "disagree", 3 equaling "neutral", 4 equaling "agree" and 5 equaling "strongly agree") which is in line with other studies in previous literature (e.g. (Kohli et al., 1993; Kok & Driessen, 2012; Taylor et al., 2008).

3.6.2 Research Sample

Research sampling is the process of selecting a smaller group of respondents or units from a larger population for the purpose of conducting research or gathering data. The aim of sampling is to choose a representative subset of the population that accurately reflects the characteristics of the entire population, so that the findings can be generalized to the larger group. According to Aaker et al., (2004), research sampling is *"the process of surveying only a sample of the whole population to make inferences about the whole population"*.

In social science research, it is often not feasible or practical to collect the data from all members of the populations being studied. This is because the population may be too large, geographically dispersed, or difficult to access. Furthermore, collecting the data from an entire population can be time consuming, expensive and may not be necessary for the research question at hand. In such kind of situation, a small number of manageable participants are selected for data collection from the target population, so that the results of the research can be generalizable to the entire population. Teddlie (2007) contends that this selection of manageable representatives from the entire population is known as sampling. In this research study the sampling process consists of the following steps:

Step 1 (Research population determination)

Before defining the research sample, it is mandatory to have clear and accurate population frame in hand. According to Hungler and Polit (1999) that the research population is "an aggregate of all the subjects or members that comply to an established set of specifications." In the similar vein, research population according to Sekaran (2003) is the complete set of the subjects, things, objects, individuals or members of interest that a researcher intends to examine. The research in hand keeps in mind the following characteristics to determine the population frame in two different contexts; Pakistan and Italy for this study.

For Pakistan

- The frim must be based in Khyber Pakhtunkhwa Pakistan
- The firm must be small and medium enterprise (according to the definition in chapter 1)
- The firm must be registered SME with SMEDA, Pakistan

For Italy

- The firm must be based in Molise, Italy
- The firm must be SME
- The firm must be registered with chamber of commerce, Molise

Step 2 Determining sampling technique

Normally, there are two categories of sampling technique in social science; probability sampling technique and non-probability sampling technique. Probability technique refers to that sampling technique in which there is equal and known chance of selection of each object within a sample. While non-probability technique refers to that techniques which is mainly followed in qualitative research in which the selection of each object for a study is in hand of the researcher on the basis of certain reasons.

As in probability sampling each and every unit / object has an equal chance of being selected, therefore, sample drawn from the population through this technique is the actual representation of the entire population, and also, lessen the chances of sampling error. On the other hand, a non-probability sampling technique, however, has some measures that do not follow random selection of participants at some stage in the process Krathwohl (1997). In fact, non-probability sampling technique is the process of non-random selection of objects / units from the whole population so "that some objects in the population have uneven and more chances to be selected than others" Bryman and Bell (2015). However, in order to enhance the generalization of the findings of this study to a large population, a simple random sampling; one of the types of probability sampling technique was adopted. A probability sampling technique is both appropriate and preferable for the study in hand, because research samples drawn from the population through probability sampling are (as discussed earlier) more representative of the population and lessen sampling error. A sample of 309 SMEs and was drawn randomly from the database of SMEDA. The final questionnaire was sent to the entrepreneurs / partners /managers of these SMEs.

Step 3 Determining the sample size

Considering the numerous variables utilized in this study, the scale selection procedure, and the usage of SEM as a data analysis technique, it is crucial to have a sufficient sample size because larger samples always result in statistical tests having better power Hair et al., (2014). Multivariate analysis techniques for instance, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structure equation modeling (SEM) need a large sample size. Since SEM as a statistical technique is used in this study to examine the relationship between different variables, therefore, the sample size of the study should meet the minimum requirements in terms of sample size for SEM. In comparison to other multivariate analysis techniques, SEM is more sensitive to sample size Hair *et al*., (2014).

Furthermore, SEM needs a large sample size in order to obtain reliable results regarding the relationship between different variables. As a general rule of thumb, according to Hair *et al*., (2014) that the minimum sample size would be to have at least five times as many cases as the number of variables to be analyzed. A more acceptable sample size, though, would have at least 10 observations for each variable Maccallum (2010). In this regard, Maccallum (2010) recommends a sample size of at least 200 observations to guarantee reliable measurements and structural models. Kline et al., (2005) suggests a sample size of more than 200 cases in complex path models. Hair *et al*., (2014) also proposes a sample size in between 200 and 400 as an appropriate sample size for SEM analysis.

Since, the research study in hand uses 13 variables in each context (see theoretical framework in chapter 2), therefore, considering the 10:1 ratio rule discussed above, a minimum of 130 (Pakistan context) and (Italy context) responses will be required to obtain reliable results from SEM analysis. However, the researcher struggled for a sample size greater than 300 to get more reliable results. In this regard 1100 in the context of Pakistan and 560 questionnaires in the context of Italy were distributed among the SMEs. Due to certain barriers in collecting the primary data from SMEs in the both contexts, the researcher believed that a minimum of more than 250 in Pakistan and more than 150 in Italy complete questionnaires would be received. However, after frequent remainders and follow up calls a response rate of 28.09% was received in Pakistan while in Italy the response rate was 29.82 %.

3.7 Unit of analysis

The accuracy of the study findings is substantially influenced by the unit from which the data is gathered, without which it is impossible to generalize the study's results to the target population. In this study, the unit of analysis from which the information is collected is the individuals (owners / partners / managers). As it is discussed in chapter 1 that the main objective of this study is to find the relative importance of individual EE attributes in the development of EE in the context of Pakistan and Italy.

Therefore, the study needs detailed information regarding the EE components affecting the EE development in these two different contexts simultaneously. In this regard, the more reasonable individuals who could provide detailed and effective information about the EE attributes and the contribution of each attribute in the EE development is the entrepreneurs / partners / managers (Chief financial officer, Production manager, marketing manager, operational manager etc.) of the SME. Therefore, in the current study, entrepreneurs/partner/managers of SMEs were selected as the key informants, because these people are expected to have sufficient knowledge about the phenomenon.

3.8 Data preparation for analysis

It is important to prepare data for subsequent analysis after the data collection stage of the current study. The proper organization of data can save a lot of time and prevent errors. In this regard, data preparation has been done for the current research by following a series of steps including: questionnaire checking, editing data, coding data, entering data, and final review of the data.

The first step is the checking of questionnaires. It involved the elimination of unacceptable questionnaires from the sample. Those questionnaires were eliminated which were incomplete (i.e. the participants missed any part of the questionnaire to fill), or if the respondents did not properly follow instructions mentioned on the questionnaire, or the participating firm was not qualified for filling out the questionnaire. Following these steps resulted in the elimination of 15 questionnaires in the context of Pakistan and 4 in the context of Italy.

Editing the data was the second step in data preparation. During this step, the data was carefully examined to look for any omissions or errors, and if necessary, fixing them accordingly. In addition to this, all necessary actions were taken to guarantee that standards of data quality were met.

Data coding was the third step in the current study for data preparation. During this process, all the variables used in this study were labeled with an alpha-numeric code in order to put them in a format that is acceptable for SPSS (statistical package used in the current research) in order to analyze the data. A unique label was assigned to each latent variable in order to make it distinctive from other latent variables and a unique number was assigned to the sub-items of the latent variables to make it distinctive from the sub-items of other latent variables. This helped the researcher to provide desirable and suitable data for computer software for the analysis.

In the fourth step of data preparation, the researcher entered the research data. During this step, the researcher manually entered the coded data in SPSS. In addition, all those sub-items of the latent variables which were negatively worded were reverse coded so that the high value denotes the same kind of response on every sub-item. At the end, in the last step of data preparation, the researcher reviewed the data file in order to minimize the data entry errors. After completing the data preparation process, the data became ready for analysis.

3.9 Purification of scales used in the current research study

Following the step of data preparation, the measurement scales utilized to measure several variables in the current study were evaluated by determining their validity and reliability. The validity and reliability of a research instrument shows the rigor of the research process and veracity of research findings Roberts et al., (2006). The main purpose of scale purification is to ensure that the scale used in this research study properly measure the underlying variables. The reliability and validity concepts will be discussed in more detail in the following section.

3.9.1 Reliability and validity

The concept of reliability has origins in classical test theory and provides a basis for creating scales that are both effective and have high psychometric integrity Furr (2011). Reliability is defined by DeVellis (2012) as " "*the proportion of variance attributable to the true score of latent variables*"," however, Saunders et al. (2012) contends that reliability demonstrates the consistency of data findings based on the methods of data collection and analysis. For a scale to be considered reliable, it must consistently provide scores that vary only in response to changes in the latent variable that the scale is intended to measure DeVellis (2012). To put it in another way, the scale will be more reliable, if the score obtained from various items of the scale indicates the true nature of the latent variable and does not account for any extraneous factors DeVellis (2012).

According to Punch (2013), validity refers to the extent to which a scale truly measures what it was intended to measure. Furthermore, the validity of a measure is determined by how well a study collects or measures the variable of interest Howell et al., (2005). According to Furr (2011) validity refers to the degree to which a scale accurately measures what it is intended to measure or how authentic the study results are. Aditionally, DeVellis (2012) argues that *"whereas reliability concerns how much a variable influences a set of items, validity concerns whether the variable is the underlying cause of item co-variation".* In social science research there are three main approaches to validity for instance, content validity, criterion-related validity, and construct validity.

3.9.2 Content validity assessment

Ensuring the content validity of the research scale is the prerequisite to the assessment of the research scale's validity and reliability for the purification of research scales. According to DeVellis (2012) content validity refers to the degree to which a specific set of items reflects a content domain. Furr (2011) argues that content validity is the ability of the items of a scale to adequately measure the content of a construct that the researcher intends to measure. Considering the above-mentioned definitions, the content validity of a scale refers to the ability of the indicators of the scale to represent the content area.

In this context, the initial pool of indicators within various scales used in this research study was subjected to content validity. To ensure the content validity of the questionnaire, the researcher carefully developed the anticipated constructs from the literature through a deductive process. Furthermore, the researcher also used the findings of the first phase exploratory study in order to refine and add some research variables according to each context to the theoretical framework of the current study. In addition, the researcher and his supervisor have thoroughly examined the scales used in this study along with every item of the scales. Afterwards, the questionnaire was examined by two panels of experts that included two scholars from Abbottabad University of Science and Technology and University of Haripur and two managers/owners of SMEs. Following the recommendations of both panels, some changes were made in the wording of some items.

3.9.3 Reliability assessment

After the assessment of the content validity of the research instrument, for further accuracy, all the scales used in the questionnaire were subject to reliability analysis. The reliability assessment ensured that the scales used in this research study sufficiently and significantly measured the underlying variables.

Purification of research measures was carried out by computing item-to-total correlation, Cronbach's alpha, and EFA in this research study as recommended by Churchill (1979) and Parasuraman *et al*., (1988). The following section will discuss these scale purification tools in more details.

3.9.3.1 Item-to-total correlation

Item-to-total correlation is the most widely used reliability assessment tool in social science research. Item-to-total correlation tests is used to identify a scale item's inconsistency with the average behavior of the other items Field (2005). This test purifies the scale by removing unrelated items and thus guaranteeing that the scale includes only those items which share a common core Churchill (1979). Keeping in mind the purpose of the purification of the scale, the researcher eliminated the items with lower item-to-correlation score. As recommended by Hair *et al*. (2014), Items with an extremely low correlation to the rest of the scale (less than 0.3 item-to-total correlation) were removed from the scale, unless and until they represent an additional domain of interest. Therefore, only those items in a specific construct were retained which represented the core of that construct.

3.9.3.2 Cronbach's alpha

An American educational psychologist Lee Cronbach for the first developed the alpha test in 1951. Alpha test is used to measure the internal consistency of a scale Tavakol & Dennick (2011). Cronbach's alpha estimates the proportion of variance that is consistent or systematic in a set of test scores. The following formula can be used to represent it as a function of number of test items and their average intercorrelation:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

Where α = Coefficient alpha

N = Total number of items in the scale

C¯ = Average inter-item covariance

V¯= Average variance

This equation shows that the alpha value depends on the number of items in a scale or the averaged of inter-item correlation for instance, if the number of items in a scale increases, the alpha value will be increased, or if the average inter-item correlation is high. A high alpha value represents high reliability (i.e. internal consistency) of the measure and suggests that *"items of the scale, notwithstanding their distinctiveness and specificity, share a common core and measure the same concept"* Netemeyer *et al*., (2003). Simply said, a high alpha value demonstrates a high internal consistency of the scale while a low alpha value demonstrates that the scale is not representing the proposed phenomena. The previous studies suggest a range of acceptable values for alpha within exploratory research, particularly in those cases where a research instrument is not validated. In this regard, Nunnally et al., (1967) suggested a Cronbach's alpha value of 0.5 for fundamental research and 0.6 for exploratory research, which Nunnally (1978) later changed to 0.7. Also, 0.7 is advised by (Netemeyer et al., 2003; Hair et al., 2014; Tavakol and Dennick, 2011). Thus, in line with earlier studies, a scale will be regarded as reliable in this study if its Cronbach's alpha value is 0.7 or above.

Within the context of the research in hand, a Cronbach's alpha value for all the scales used to measure different constructs namely; supportive culture and risk-taking, history of entrepreneurship, worker talent, networking, finance / investment capital, mentors and role models, policy and governance, universities, support services, infrastructure, market accessibility, social media and entrepreneurial ecosystem development was calculated and any scale with less than a 0.7 Cronbach's alpha value was excluded.

3.9.3.3 Exploratory Factor analysis (EFA)

The objective of EFA, according to Netemeyer et al. (2003), is to identify the smallest number of latent constructs that are capable of fully explaining the association and underlying factor structure for a given set of variables. Hair et al., (2014) suggested that EFA is an exploratory method that investigates potential underlying factor structure among a group of variables without imposing any "a priori constraints on the estimation of components". In order to understand the dimensionality of a set of variables EFA is considered as the most useful factor analysis technique and eliminate the items which do not assume to measure the construct well Dobni (2008). It is worth mentioning that in the research in hand, prior to EFA, reliability analysis item-to-total correlation and Cronbach's alpha were conducted. Churchill, (1979) argues that calculating EFA for a set of unreliable variables could result in a "garbage-in, garbage-out" scenario and identify irrelevant things for a construct. In the current study, EFA was conducted on initially reliable items which then helped the researcher to group items that represented the underlying constructs.

3.10 Structural Equation Modeling (SEM)

To find a simple and accurate definition of SEM is not an easy task. However, Kaplan (2008) argues that SEM refers to "a class of methodologies that seeks to represent hypotheses about the means, variances, and covariance of observed data in terms of a smaller number of structural parameters defined by a hypothesized underlying model". According to Shah & Goldstein (2006) that SEM refers to statistical approaches that is used to analyze structure of interrelationships given in a set of equations akin to a set of multiple regression equations. While, Byrne (2013) defines SEM as a statistical technique that uses a hypothesis-testing approach to analyze a structural theory that describes "causal" processes. Byrne (2013) further argues that SEM provides two important types of information about structural theory; first a series of structural (regression) equations represent structural relationship and for causal process, graphical models are used to portray clear conceptualization of structural theory. The relationship of theorized model with the whole set of latent constructs is then simultaneously statistically tested to find out whether it is consistent with data or not. If the model demonstrates adequate goodness of fit, then it means that the hypothesized relationship among latent constructs are acceptable and creditable; if it is inadequate then the such hypothesized relationships are rejected (Byrne, 2013; Hair *et al*., 2014).

As compare to other multivariate techniques, SEM provides multiple advantages for instance, regression and path analysis. According to Hair *et al*. (2014), unlike other multivariate procedures which focuses only on a single relationship between independent and dependent variables, SEM has the ability to evaluate many discrete but interdependent multiple regression equations simultaneously. In this regard, SEM technique is considered as an appropriate technique of choice for economic and management scholars (Hancock and Mueller 2006; Hooper et al. 2008).

Based on the objectives of the research in hand, developing a scale to predict the individual effect of cultural (supportive and risk-taking culture, history of entrepreneurship), social (worker talent, mentors and role model, network, finance/investment capital), and material (universities, support services, infrastructure, market accessibility) attributes and social media on EE development. This relationship will be translated by SEM into structural equation just like regression equation. Furthermore, unlike other multivariate analysis techniques, SEM incorporates latent constructs into analysis which are unobservable and will be measured by combinations of certain items or indicators. The use of multiple items for a single theoretical construct lessen the measurement error in the construct and also increases the statistical estimation of the relationship between theoretical constructs by accounting for the measurement error in the latent constructs.

Hair *et al*., (2014). Within this context, more reliable relationships between latent constructs such as EE development can be estimated by not ignoring the measurement error. Moreover, other multivariate analysis techniques only consider observed constructs, while SEM incorporates both observed and latent (unobserved) constructs Byrne (2013). Consequently, using SEM as an analysis technique will help the researcher to define a simple and clear model that will elaborate the entire relationship between latent constructs used in the current research study.

Moreover, the rationale underpinning the utilization of Partial Least Squares Structural Equation Modeling (PLS-SEM) as opposed to Covariance-Based Structural Equation Modeling (CB-SEM) resides in the heightened robustness of PLS-SEM, coupled with fewer identification issues. PLS-SEM exhibits a notable adaptability, accommodating both smaller and larger sample sizes, while concurrently facilitating the integration of formative and reflective constructs (Lohmöller, 1989; Reinartz, Haenlein, & Henseler, 2009; Ringle et al., 2009; Hair et al., 2011). Furthermore, the adoption of PLS-SEM is motivated by its comparative insensitivity to normality-related concerns.

Chapter 4

The exploratory phase

The aim of this chapter is to discuss the exploratory phase of this research study which is focused on EE attributes in two different contexts. This phase of the research study intends to assess the appropriateness of EE attributes identified by the researcher from the extant literature on the topic. In this regard, semi-structured interviews were conducted in two different contexts.

4.1 Semi-structured interviews

In order to further clarify and carefully examine the appropriateness of the EE attributes resulting from extant literature review with regard to development of EE in Pakistan and Italy, semi-structured interviews were conducted. The semi-structured interview method was followed at this stage of research study due to its ability to obtain rich and in-depth information regarding the EE attributes from the perspective of EE stakeholders in both contexts. According to Harris (1998) that semi-structured interviews allow the researcher to discuss complex topics and thus produce rich and in-depth data that is exploratory in nature. Purposive sampling technique, a type of non-probability approach to sampling was adopted in the study. This technique is also known as judgement sampling. Using this technique, the researchers use their judgments to select the respondents with appropriate experience and expertise. These expert and experienced participants are more suitable to best answer the research questions. Within this context, the following characteristics were followed to select the EE stakeholders:

- Entrepreneurs / partners / managers of SMEs in Pakistan and Italy
- Representatives from chamber of commerce, ESOs and Technology transfer offices
- Academics

The researcher sent invitation letters (only in context of Pakistan) and invitation emails (in both contexts i.e. Pakistan and Italy) to different EE stakeholders identified with the consultation of the researcher's supervisor and field experts. These stakeholders were from different walks of life, for instance, education, government regulating bodies, entrepreneurs, representatives from ESOs' chamber of commerce. 15 stakeholders in the context of Pakistan and 11 were identified in the context of Italy. The researcher made phone calls and sent gentle emails to these stakeholders to expediate the data collection process. As a result of these follow ups, 11 and 10 stakeholders in the contexts of Pakistan and Italy respectively were agreed to take part in semi-structured interviews. However, 17 interviews were conducted instead of expected 21 interviews in total. (09 interviews in Pakistan and 08 in Italy (see appendix A and B). Two interviewees in Pakistan and threes interviewees failed to show their availability in the mentioned time frame. In this situation, researcher is of the opinion that representative sample size is not mandatory because study is searching for information rich cases rather than for generalization. As (Patton, 2002) elaborates that *"There are no rules for sample size in qualitative inquiry…..In-depth information from a small number of people can be very valuable, especially if the cases are information rich"*.

Two different interview protocols were designed in both contexts for instance, one for entrepreneurs and one for other EE stakeholders. While the terminologies used in the interview protocol are different, the main theme / concept remains the same. The interview protocol designed for entrepreneurs is simple demonstrating easy terminologies understandable for common persons. On the other side, the interview protocol designed for other EE stakeholders demonstrates technical terminologies but are understandable for the respondents. Both types of interview protocols were designed to enlist those questions in the interview protocols which can provide deep understanding of EE attributes in both contexts when answered by the respondents. For this purpose, 21 and 14 open ended questions were used in the entrepreneur and other EE stakeholder interview protocols respectively (see appendix C and D). These questions were derived from reading the extensive EE literature. After the review of the interview protocols by the researcher's supervisor and other field experts, semi-structured interviews were conducted.

The researcher started the semi-structured interview with a brief introduction of himself and explaining the purpose of the current research study, the importance of the interviewee involvement as a participant in the current study and the impact the study will make. Following the introduction, the researcher thoroughly explained the different entrepreneurship related terminologies and academic terms used in the interview to respondents for a purpose to make these terms and terminologies more understandable for them. Moreover, the interview was conducted in Urdu (Pakistan' National Language) so that the respondents feel comfortable in explaining their know-how of EE development and EE attributes. Each interview took 40 to 60 minutes to complete and was audiotaped. The interviewer, along with his observations took detailed notes regarding entrepreneurs / EE stakeholders' responses during by the interview.

4.2 The results of semi-structured interviews

As discussed in the previous section, that semi-structured interviews were conducted with a purpose to explore and find out salient factors which derived from the extensive literature review. Consequently, the researcher analyzed each interview to find out the significance of contextual EE attributes in the EE development in the contexts of Pakistan and Italy from the perspective of different EE stakeholders. By analyzing the data generated from 09 and 08 semi-structured interviews in Pakistan and Italy respectively, some interesting results about the contextual EE attributes which affect the development of EE in Pakistan and Italy were explored by the researcher. When the researcher asked the interviewees regarding the EE attributes / drivers, the 85% of the participants explained that leadership, supportive government rules and policies, culture, success stories, human capital, financial capital, entrepreneurship organization, academia, industry, infrastructure, networks, business support services, are considered as important for the EE development in their region. These findings are in line with the previous literature (Neck et al., 2004; Cohen, 2006; Isenberg, 2011; Feld, 2012; Stam, 2015, Spigel, 2017).

When probed about the EE attributes from government regulating body's representative in Pakistan, he expressed his views:

> "*I think… the elements of entrepreneurial ecosystem should include but not limited …., government's inclination towards entrepreneurship, supportive culture, practice of success stories, availability of human and financial resources...entrepreneurship supporting organizations, academia-industry linkages, good infrastructure, economic clusters, networks, business support services*".

Similarly, another respondent from academia in Pakistan stated that:

> "*If you ask me generally, then I would say that …. Government schemes for entrepreneurship, networking events between academia, industry and government, story telling, enlisting entrepreneurship-oriented courses in our sallybus, availability of business support organizations, presence of entrepreneurial universities, availability of finance, are the crucial elements that can …I think, shape a good entrepreneurial ecosystem in this region"*

One owner from the pharmaceutical company in Pakistan concluded:

> *"As I mentioned earlier the role of mentor is important to guide an entrepreneur in business related matters. In addition, …. I would like to say that supportive culture, social media, safe and secure environment, good condition of roads, railway tracks, airports, networking with different stakeholders of the entrepreneurial ecosystem, availability and accessibility to financial institutions, encouraging new entrepreneurs by giving examples of successful entrepreneurs…accessibility to target markets are the ingredients which can develop EE in our region."*

One of the representatives from Office of Research, Innovation and Commercialization (ORIC), Pakistan expressed his views:

> *"Building EE requires strong ties among the stakeholders… A strong bond between academics, industry and government is mandatory… in addition, the educational institutions need to enlist the updated courses regarding entrepreneurship and innovation in their syllabus."*

One representative from technology transfer office, Italy shared her views"

> "*In my opinion, networking events should be arranged to encourage the interactions among the EE stakeholders… Culture support is an important factor ….in facilitating businesses… in this regard, we should inculcate entrepreneurship-oriented culture in the region… apart from this I must say that the role of university is also important"*

Within this context, the results from data analysis of the semi-structured interviews shows that social media in the contexts of Pakistan and Italy is the influential factor affecting entrepreneurial activity in a region. On the basis of the findings drawn from semi-structured interviews, social media was considered as an important EE attribute by majority of respondents for instance, 88.88%

interviewees, in the context of Pakistan and Italy. As when asked about the role of social media in EE, an entrepreneur from Italy stated that

"*In all our business social media is very important as a marketing instrument/tool. But you need to study it because it is not too simple to use it. You can choose the region, you have to set up many variables to reach the correct customers and for all things you have to study*"

Similarly, when one of the academics explained the importance of social media like this:

"I talked to (told the name of colleague) that you are not on Facebook, Instagram, on social media. This is not a correct approach. We use social media to connect with community…. create awareness…. It is important for businesses to use… social media as it influences people because Social media is the opportunity with low cost… Or without cost to share. So, I am very fond of social media to use... Also have the opportunity to talk, to share, the professional and private life. I think the social media facilitates businesses in a region…"

One interviewee from the chamber of commerce, Pakistan concluded:

"*Social media is a good channel of communication but the thing is that we should use it in effective way…it provides the platform to entrepreneurs to advertise their vacant positions, products and share their achievements…"*

One respondent from the business supporting organization, Italy explained:

"As in Molise, we do not have good infrastructure… we need to use social media as a communication channel… Facebook, Linked In, Instagram are the platforms which we can use to connect with EE stakeholders…"

To sum up, the findings of semi-structured interviews conducted in the current study are in line with the previous literature regarding the EE main attributes. Based on the findings of semi-structured interviews, one additional element social media in the contexts of Pakistan and Italy was added for further investigation in the quantitative analysis. Following the literature and the findings of the semi-structured interviews resulted in the theoretical framework, discussed in chapter 2.

Chapter 05

Descriptive Statistics of Quantitative Data

5.1 Introduction

This chapter focuses on the analysis of the quantitative data collected through research questionnaires from 308 SMEs in Pakistan and 167 SMEs in Italy. The objectives of the current research as discussed earlier in chapter no.1 is to examine the effect of different attributes on the development of entrepreneurial ecosystem in two different contexts for instance, developing and developed contexts. The data from Pakistan and Italy collected through a designed survey instrument were put to descriptive statistics in SPSS to check the mean, standard deviation, and the detailed cumulative percent in each category. The table 5.1a and 5.1b below gives a comprehensive account of the demographics of Pakistan and Italy respectively.

Table 5.1a: Descriptive statistics, Pakistan Context

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Gender	308	1	2	1.36	.481	0.231
Age of Person	308	1	3	1.58	.526	0.277
Level of Education	308	1	5	1.71	.856	0.732
Role in SME	308	1	3	1.62	.500	0.250
Valid N (listwise)	308					

Table 5.1b: Descriptive statistics, Italy Context

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Gender	166	1	2	1.36	0.482	0.232
Age of Person	166	2	5	4.04	0.801	0.641
Level of Education	166	2	5	3.42	0.635	0.403
Role in SME	166	1	3	1.44	0.734	0.539
Valid N (listwise)	166					

The above tables 5.1 and 5.1b show the total number of respondents, the minimum and maximum value for each demographic characteristic, and the corresponding mean, standard deviation and variance. The individual characteristics with respect to the frequency and cumulative percent for both contexts are discussed in the following table 5.2a and table 5.2b.

Table 5.2 a: Individual Characteristics of respondents, Pakistan

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	197	64.0	64.0	64.0
	Female	111	36.0	36.0	100.0
	Total	308	100.0	100.0	
Age of Person					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 25	134	43.5	43.5	43.5
	26 to 35	169	54.9	54.9	98.4
	36 to 45	5	1.6	1.6	100.0
	Total	308	100.0	100.0	
Level of Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nor Formal Education	133	43.2	43.2	43.2
	School Level	157	51.0	51.0	94.2
	Degree Level	9	2.9	2.9	97.1
	Postgraduate Level	9	2.9	2.9	100.0
	Total	308	100.0	100.0	
Role in SME					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Owner/Partner	120	39.0	39.0	39.0
	Manager	186	60.4	60.4	99.4
	Others (Please Specify)	2	.6	.6	100.0
	Total	308	100.0	100.0	

It can be seen in the above table 5.2a that each demographic variable is further elaborated to show how many respondents belong to each category. For instance, the majority of the respondents were male (64%), belonged to the age group 26 to 35 years (54%), had school level education (51.9%), and were SME managers (70.5%).

Table 5.2 b: Individual characteristics of respondents, Italy

Gender				
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	106	63.9	63.9	63.9
Female	60	36.1	36.1	100.0
Total	166	100.0	100.0	
Age of Person				
	Frequency	Percent	Valid Percent	Cumulative Percent
26 to 35	6	3.6	3.6	3.6
36 to 45	32	19.3	19.3	22.9
46 to 55	78	47.0	47.0	69.9
More than 55	50	30.1	30.1	100.0
Total	166	100.0	100.0	
Level of Education				
	Frequency	Percent	Valid Percent	Cumulative Percent
School Level	1	0.6	0.6	0.6
College Level	106	63.9	63.9	64.5
Degree Level	47	28.3	28.3	92.8
Postgraduate Level	12	7.2	7.2	100.0
Total	166	100.0	100.0	
Role in SME				
	Frequency	Percent	Valid Percent	Cumulative Percent
Owner/Partner	117	70.5	70.5	70.5
Manager	25	15.1	15.1	85.5
Others (Please Specify)	24	14.5	14.5	100.0
Total	166	100.0	100.0	

It can be seen in the above table 5.2b that each demographic variable is further elaborated to show how many respondents belong to each category. For instance, the majority of the respondents were male (63.9%), belonged to the age group 46 to 55 years (47%), had college level education (63.9%), and were SME owner/partner (70.5%).

5.2 Exploratory factor analysis (EFA)

After the data collection process and demographic analysis, it was inevitable to put the data through a number of tests to ensure its validity and reliability. A self-developed questionnaire as used in the current study necessitates the use of an Exploratory Factor Analysis (EFA). EFA ensures the minimum number of items that sufficiently elaborate the latent constructs. According to Heir et al. (2018) that EFA is a method that explains the possible underline structure of a set of items not putting any "priori constraints on the estimation of components". This method helps in condensing the information into a small number of items with the least amount of information lost, preserving the latent construct's general structure Hair et al., (2018). EFA is regarded as the most helpful approach for examining the underlined dimensionality of a set of items and removing variables that do not contribute to the assessment of the latent construct Dobni (2008). However, a few conditions must be met before the EFA can be conducted. These requirements entail calculating the item-to-total correlation and Cronbach's Alpha value for each item. The Cronbach's Alpha value must be greater than 0.70, and the item-total correlation must not be less than 0.30. According to Churchill (1979) that the reason being calculating EFA for a group of unreliable variables may result in "garbage-in garbage-out situation" which may lead to the identification of irrelevant items for a construct. A comprehensive analysis of the data for these tests is presented in the following table 5.3.

Furthermore, the researcher also checked for key considerations before conducting EFA including, adequate sample size of more than100 observations (309 and 167 observations in the contexts of Pakistan and Italy respectively in the current research), strong theoretical support for the structure of constructs, and a minimum of three items per construct Heir et al., (2018).

Table 5.3: Results of EFA Reliability (Results of Reliability analysis)

		First Analysis					Second Analysis				
Construct	**Items**	**Item-Total Correlation**	**Mean**	**Variance**	**Std. Deviation**	**Reliability Alpha**	**Item-Total Correlation**	**Mean**	**Variance**	**Std. Deviation**	**Reliability Alpha**
SRC	SRC1	0.175	18.56	40.227	6.343	0.808	Deleted	11.96	34.741	5.894	0.922
	SRC2	0.010					Deleted				
	SRC3	0.737					0.788				
	SRC4	0.818					0.856				
	SRC5	0.830					0.846				
	SRC6	0.765					0.792				
HE	HE1	0.797	8.71	20.465	4.524	0.915	0.785	8.71	20.465	4.524	0.915
	HE2	0.874					0.835				
	HE3	0.818					0.756				
WT	WT1	0.412	15.05	19.141	4.375	0.794	Deleted	11.09	13.343	3.653	0.831
	WT2	0.717					0.726				
	WT3	0.676					0.698				
	WT4	0.631					0.648				
FIC	FIC1	-0.082	18.80	23.894	4.888	0.729	Deleted	15.45	23.076	4.804	0.868
	FIC2	0.679					0.737				
	FIC3	0.637					0.671				
	FIC4	0.720					0.779				
	FIC5	0.636					0.696				
N	N1	0.585	19.62	29.090	5.393	0.83	0.706	19.62	29.090	5.393	0.830
	N2	0.573					0.750				
	N3	0.697					0.718				
	N4	0.704					0.571				
	N5	0.588					0.752				
MRM	MRM1	0.566	15.24	17.851	4.225	0.752	0.566	15.24	17.851	4.225	0.752
	MRM2	0.635					0.635				
	MRM3	0.522					0.522				
	MRM4	0.471					0.471				

PG	PG1	0.502	18.91	14.572	3.817	0.585	0.600	10.62	12.087	3.477	0.757
	PG2	0.550					0.626				
	PG3	0.440					0.535				
	PG4	0.121					Deleted				
	PG5	0.083					Deleted				
U	U1	0.126	20.50	11.899	3.449	0.775	Deleted	11.79	10.641	3.262	0.912
	U2	0.034					Deleted				
	U3	0.720					0.795				
	U4	0.829					0.840				
	U5	0.747					0.836				
	U6	0.672					0.749				
SS	SS1	0.412	15.05	19.141	4.375	0.794	0.412	15.05	19.141	4.375	0.794
	SS2	0.717					0.717				
	SS3	0.676					0.676				
	SS4	0.631					0.631				
PI	PI1	0.519	17.26	13.587	3.686	0.582	0.600	10.62	12.087	3.477	0.757
	PI2	0.504					0.626				
	PI3	0.450					0.535				
	PI4	0.072					Deleted				
	PI5	0.125					Deleted				
MA	MA1	0.655	9.45	4.561	2.136	0.832	0.655	9.45	4.561	2.136	0.832
	MA2	0.717					0.717				
	MA3	0.729					0.729				
SM	SM1	0.482	15.07	7.040	2.653	0.591	0.636	9.61	4.949	2.225	0.830
	SM2	0.567					0.808				
	SM3	0.349					0.656				
	SM4	0.298					Deleted				
	SM5	0.117					Deleted				
DEE	DEE1	0.536	31.23	15.805	3.976	0.803	0.536	31.23	15.805	3.976	0.803
	DEE2	0.564					0.564				
	DEE3	0.521					0.521				
	DEE4	0.498					0.498				

	DEE5	0.444					0.444				
	DEE6	0.452					0.452				
	DEE7	0.559					0.559				
	DEE8	0.591					0.591				

As shown in the above table 5.3, items having item-to-total correlation values less than 0.3 were eliminated from the second analysis. These items included SRC1, SRC2, WT1, FIC1, PG4, PG5, U1, U2, PI4, PI5, SM4, and SM5. Additionally, the table 5.3 shows the values of Cronbach's alpha greater than .70 - standard value for Cronbach's alpha allowing the researcher to continue the data analysis with the same constructs.

5.2.1 Barlett test of sphericity and the Kaiser-Meyer-Olin (KMO)

The next step is to check the data's appropriateness for factor analysis. According to Hair et al., (2014) that it is mandatory to ensure that the items are sufficiently inter-correlated to produce representative constructs. This research study uses the Barlett test of sphericity and the Kaiser-Meyer-Olin (KMO) Measure of Sampling Adequacy as two statistical tools to evaluate the factorability of the correlation matrix recommended by Hair et al., (2014). According to (Hair et al., 2014) that the Barlett test of Sphericity at $p < 0.05$ shows that the correlation matrix has a high degree of correlation among at least some of the items that assures its eligibility for EFA. Additionally, the KMO index ranges from 0 to 1, with values close to 1 indicating that each item can be predicated by the other items without error Kline (2011). The interpretation of KMO values can be properly done by following the guidelines presented by Heir et al., (2018): meritorious (0.80 and above), middling (0.70 to less than 0.79), mediocre (0.60 to less than 0.69), miserable (0.50 to less than 0.59), and unacceptable (less than 0.50). According to Netemeyer et al., (2003) that the researcher must have the value of KMO above 0.50 to carry out an EFA. Furthermore, a significant Barlet Test of Sphericity (i.e p less than .05) is needed for EFA Netemeyer (2003).

Table 5.4: Results of KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.818
Bartlett's Test of Sphericity	Approx. Chi-Square	19219.981
	Df	1275
	Sig.	0.000

Since data with KMO values above 0.80 are normally regarded as adequate for this type of analysis, the KMO value was found to be 0.818 as mentioned in above table 5.4, which is extremely appropriate for factor analysis.

Once the researcher determined that the data set is suitable for EFA (via adequate sample size, strong theoretical support for the structure, a statistically significant Barlet test of Sphericity at $p < 0.05$ and KMO value above 0.80) the next step is to choose a suitable factor extraction method to reduce the number of items and extract factors (Hair et al., 2014; Netemeyer et al., (2003).

Principal Component Analysis (PCA) and Common Factor Analysis (CFA) are the two basic methods used for factor extraction Heir et al., (2018). Principal Component Analysis (PCA) assumes the total variance and derived factors based on common, unique and error variance Hair et al., (2018). However, on the other hand, (Hair et al., 2018) states that CFA considers only common variance and assume that unique and error variance is not of any interest in extracting factor. Hair et al. (2018) further illustrated that the EFA's objectives and the researcher's understanding of the variance in the constructs influence the choice of an acceptable extraction method.

The current research study has a sample size of 309 and 167 in the contexts of Pakistan and Italy respectively greater than 100 Heir et al., (2018), KMO value is .818 which lies in meritorious category Heir et al., (2018) and the Barlet Test of Sphericity is also significant. After confirmation of the suitability of data, the researcher proceeds to the next step of selecting and using appropriate extraction method for factors to minimize the number of items while not losing too much information Netemeyer et al., (2003). In this regard, in this research study, the data were subjected to an exploratory factor analysis (EFA) using the principal component analysis (PCA) suggested by Heir et al., (2018) with varimax rotation. The Varimax rotation method, according to Hair et al. (2018), is particularly useful when the researcher wants to reduce the number of items to a minimal amount or to a set of uncorrelated structures for further analysis.

Additionally, to ensure a sufficient level of explanation, the communality of the scale - which assesses the amount of variance in each dimension - was also assessed. All communalities were found to be above the minimum permissible threshold of 0.50 as a result of the analysis, as shown in the table 5.6 below.

Table 5.5 Principal Component Analysis

	Initial	Extraction
SRC3	1.000	0.709
SRC4	1.000	0.778

	Initial	Extraction
SRC5	1.000	0.870
SRC6	1.000	0.869

HE1	1.000	0.870
HE2	1.000	0.869
HE3	1.000	0.754
WT2	1.000	0.794
WT3	1.000	0.771
WT4	1.000	0.730
FIC2	1.000	0.724
FIC3	1.000	0.603
FIC4	1.000	0.870
FIC5	1.000	0.870
N1	1.000	0.870
N2	1.000	0.870
N3	1.000	0.840
N4	1.000	0.741
N5	1.000	0.775
MRM2	1.000	0.781
MRM3	1.000	0.526
MRM4	1.000	0.829
PG1	1.000	0.695
PG2	1.000	0.656
PG3	1.000	0.639
U3	1.000	0.806
U4	1.000	0.847
U5	1.000	0.859
U6	1.000	0.746
SS2	1.000	0.710
SS3	1.000	0.925
SS4	1.000	0.930
PI1	1.000	0.925
PI2	1.000	0.930
PI3	1.000	0.527
MA1	1.000	0.749
MA2	1.000	0.910
MA3	1.000	0.901
SM1	1.000	0.910
SM2	1.000	0.901
SM3	1.000	0.776
DEE1	1.000	0.603
DEE2	1.000	0.753
DEE3	1.000	0.767
DEE4	1.000	0.671
DEE5	1.000	0.758
DEE6	1.000	0.731
DEE7	1.000	0.773
DEE8	1.000	0.780

Table: 5.6 Extraction Method: Principal Component Analysis

	Initial Eigen values	% of Variance	Cumulative %	Extraction Sums of Squared Loadings	% of Variance	Cumulative %	Rotation Sums of Squared Loadings	% of Variance	Cumulative %
	Total			Total			Total		
1	9.267	18.171	18.171	9.267	18.171	18.171	5.559	10.901	10.901
2	4.164	8.164	26.335	4.164	8.164	26.335	4.048	7.937	18.838
3	3.607	7.072	33.406	3.607	7.072	33.406	3.842	7.533	26.371
4	3.432	6.729	40.136	3.432	6.729	40.136	3.295	6.461	32.831
5	3.086	6.050	46.186	3.086	6.050	46.186	3.240	6.352	39.184
6	2.394	4.693	50.879	2.394	4.693	50.879	2.984	5.852	45.035
7	2.121	4.159	55.038	2.121	4.159	55.038	2.730	5.352	50.388
8	1.712	3.358	58.396	1.712	3.358	58.396	2.533	4.967	55.355
9	1.564	3.066	61.462	1.564	3.066	61.462	2.448	4.800	60.155
10	1.420	2.784	64.247	1.420	2.784	64.247	1.573	3.084	63.239
11	1.138	2.231	66.478	1.138	2.231	66.478	1.280	2.509	65.748
12	1.055	2.070	68.548	1.055	2.070	68.548	1.234	2.419	68.168
13	0.975	1.911	70.459	1.032	1.911	70.459	1.168	2.291	70.459
14	0.926	1.816	72.275						

15	0.881	1.727	74.002						
16	0.782	1.532	75.534						
17	0.748	1.466	77.001						
18	0.718	1.408	78.409						
19	0.659	1.292	79.700						
20	0.614	1.204	80.904						
21	0.601	1.178	82.082						
22	0.584	1.146	83.228						

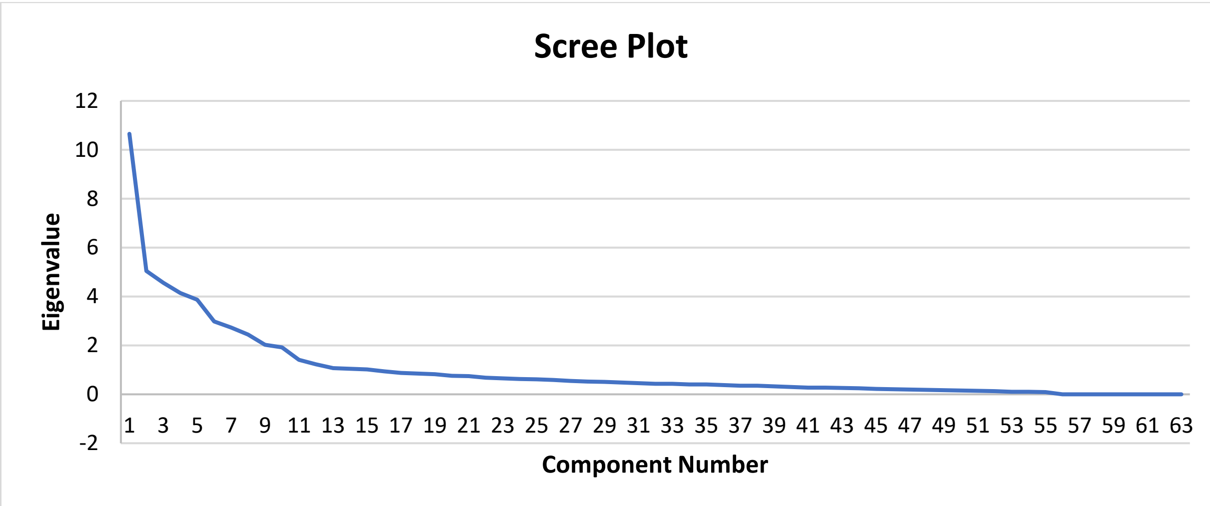
As mentioned in the above table 5.6 the EFA resulted in a factor solution of 13 factors for the scale, which accounted for 70.459% of the variation in the data.

5.2.2 Scree Plot

In order to extract more valid EFA results, the researcher also used the scree plot method. Cattell gave the Scree Test its name because of how the Scree Test graphic presentation resembles the rock debris (Scree) at the base of a mountain. It involves two steps when inspecting and interpreting scree plots. Firstly, draw a straight line through the smaller eigenvalues where a departure from this line occurs. This point highlights where the debris or break occurs. Secondly, the number of factors that must be retained is indicated by the point above this debris or break (excluding the break itself). As shown in the figure below, a scree plot is a graphical representation of the eigenvalues of factors extracted from a dataset using factor analysis. It is used to determine the number of factors to retain in the analysis. The scree plot typically displays the eigenvalues on the y-axis and the number of factors on the x-axis, in order of extraction.

The plot shows a steep decline in eigenvalues for the first few factors, followed by a more gradual decline for the remaining factors. The steep decline, known as the "elbow," indicates a point where the eigenvalues start to level off, suggesting that the number of factors to retain is somewhere between the first few factors and the remaining factors. In this case, the elbow point is around the 13th factor, indicating that 13 factors should be retained in the analysis.

Figure: 5.1 Scree Plot



5.3 Structural Equation Modeling Analysis

Structural equation modeling (SEM) has been regarded as a family of statistical methods that is designed to elaborate the relationship among different variables. According to Heir et al., (2014), a researcher can use SEM to analyze the interrelationship between multiple exogeneous and endogenous variables. The exogeneous variables are similar to independent variables whereas endogenous variables are similar to dependent variables that are presented in a series of equations, much like multiple regressions. These equations indicate all of the relationships between exogenous and endogenous variables involved in the analysis Hair et al., (2014). In SEM, measurement model is used to validate the relationship between the latent constructs also known as unobserved variables and observed variables, also known as measured variables or indicators while structural model is used to test the hypothetical relationship between latent constructs Hair et al., (2014).

In the current research study, after putting the data to EFA and getting satisfactory results (as mentioned above in sections 5.1.1 and 5.1.2), the next step was to conduct Confirmatory Factor Analysis (CFA). It is a statistical technique used to confirm the factor structure of a set of observed variables. In the context of structural equation modeling (SEM), CFA is often used to test the measurement model of the SEM, which involves specifying the relationships between the latent variables and their observed indicators Kline (2015).

This research study uses Smart PLS which is a popular software tool used for SEM analysis and provides a range of features for both exploratory and confirmatory factor analysis. Smart PLS uses the partial least squares (PLS) method to estimate the model parameters, which is a non-parametric approach that is less sensitive to sample size and distributional assumptions than other SEM techniques Chin (2010).

While CFA is a common step in SEM analysis, it is not always necessary when using Smart PLS. This is because Smart PLS can perform a "soft modeling" approach to factor analysis, which is more flexible and allows for the inclusion of items that may not necessarily load onto a single factor Hair et al., (2011).

Several studies have investigated the performance of Smart PLS compared to other SEM techniques, including CFA. For example, Hair et al., (2011) found that Smart PLS produced similar results to CFA in terms of convergent and discriminant validity, but was less sensitive to model misspecification. Similarly, Ringle et al., (2012) demonstrated that Smart PLS produced similar results to CFA in terms of construct validity and reliability.

Therefore, this study did not necessitate conducting CFA separately. Hence, after conducting EFA, the study opted for Structural Equation Modeling (SEM) analysis. The software used for the said purpose was Smart-PLS 4. The SEM analysis results in two different outputs namely, Measurement Model and Structural Model. The former is related to the analysis of the manifest variables, i.e., the reliability and validity of the observed variables through which we measure the constructs of the study. The latter is related to testing the effect of the exogenous (independent) variables on the endogenous (dependent) variables Hair et al., (2018). The results of the SEM analysis are discussed in the following section. This study follows the process recommended by Hair et al., (2018) and Anderson and Gerbing (1988), who contend that SEM analysis can be performed utilizing measurement model (i.e CFA analysis) and structural model assessments (i.e path analysis).

5.3.1 Measurement Model

In this research study, the measurement model was tested to assess the internal consistency reliability, convergent validity (CV) and discriminant validity (DV) of the constructs. After importing the data to Smart-PLS 4, the first step was to design the model. The outlook of the model of the current study in Italy and Pakistan contexts is shown in the figure 5.2a and figure 5.2b respectively. It can be seen that the model consists of the same variables that resulted from the results of EFA analysis i.e., 13 factors in total.

Figure 5.2 a: Measurement model, Italy context

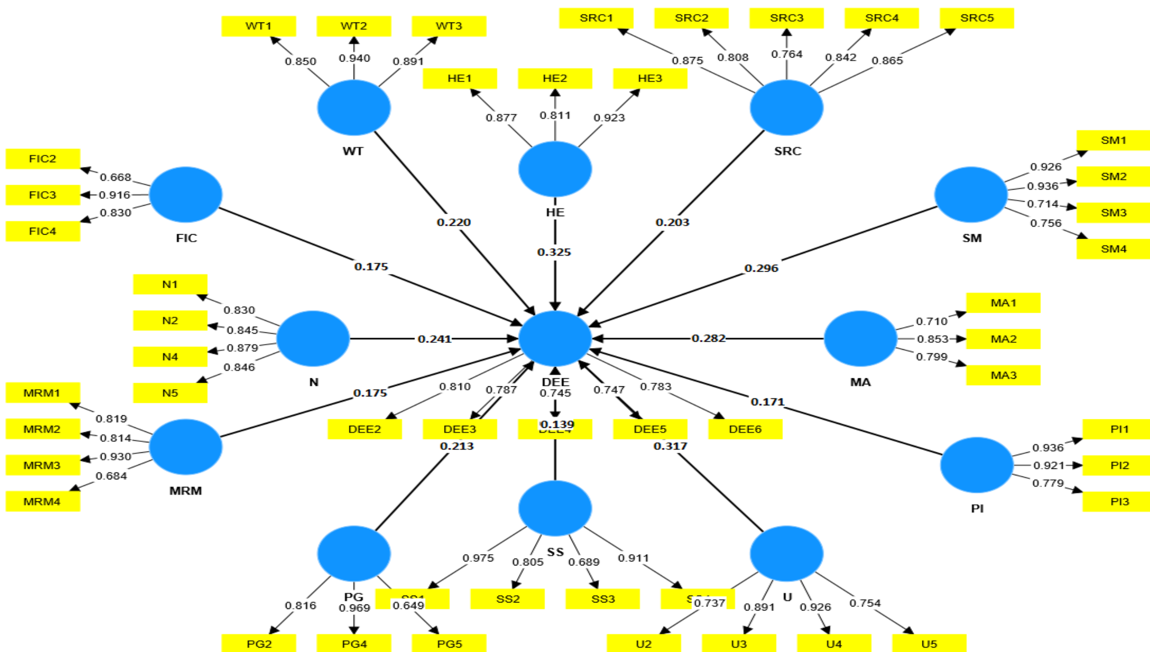
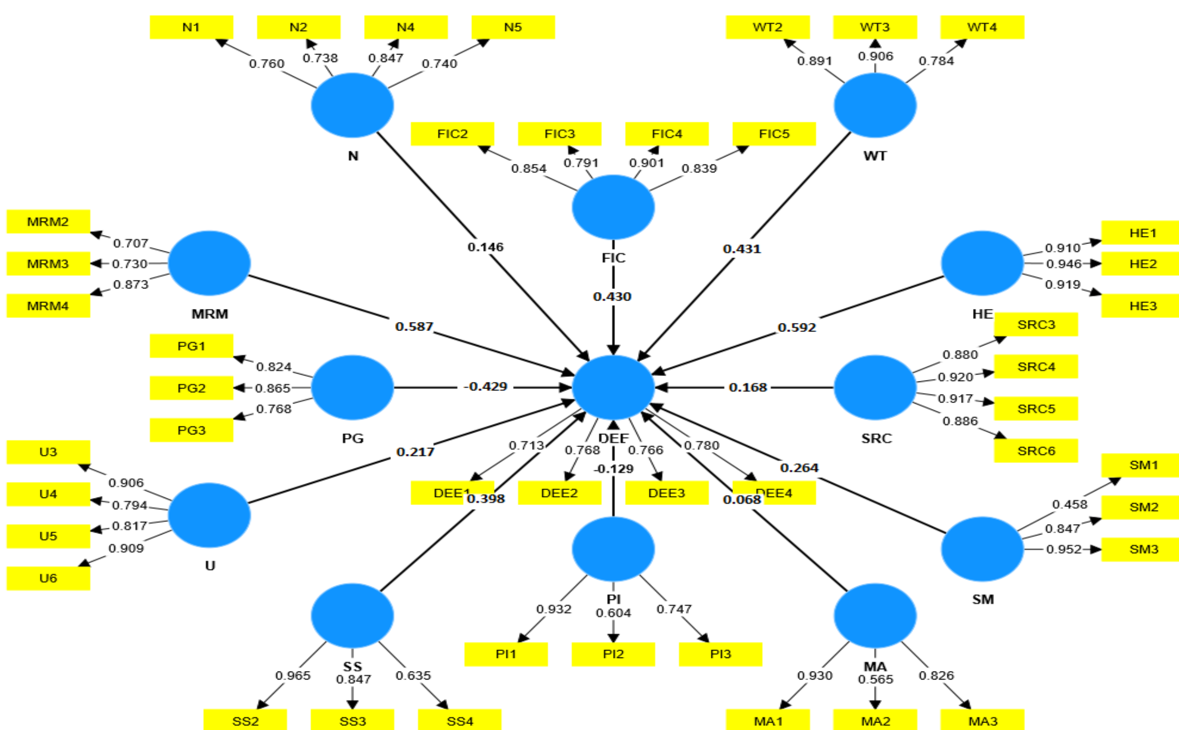


Figure 5.2 b: Measurement model, Pakistan context



It is worth mentioning here that the current study's model was a reflective model as all the arrows were pointing from the construct to the observed variables (items). If these arrows were pointing from the items to the construct, it would have been a formative model that requires a different set of analysis.

5.3.1.1 Internal Reliability

After setting the model, it was then put to analysis in which PLS algorithm was run to check the reliability and validity of the data. There are various measures of the data reliability in Smart-PLS. As our model was reflective, the first measure we used was the outer loadings. The data is considered satisfactory if the values of the outer loadings are greater than 0.70 Hair et al., (2018). Certain items had outer loading value of less than 0.70 that were red flagged to be eliminated from the mode. However, before deleting an item on the basis of outer loadings, it is also advised to check the Cronbach's Alpha values and the Average Variance Extracted (AVE) values of the said items. In case these two values are satisfied and the outer loadings is more than 0.40, the authors can retain the item Hair et al., (2014). After a careful study of the individual items, the following values for the item's internal reliability were achieved. A detailed description of the data's internal reliability for Italy and Pakistan contexts is given in the following table 5.6a and table 5.6b respectively.

Table 5.6a: Reliability and Convergent Validity, Italy context

	Outer loadings	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
DEE2 <- DEE	0.810	0.834	0.882	0.600
DEE3 <- DEE	0.787			
DEE4 <- DEE	0.745			
DEE5 <- DEE	0.747			
DEE6 <- DEE	0.783			
FIC2 <- FIC	0.668	0.798	0.851	0.659
FIC3 <- FIC	0.916			
FIC4 <- FIC	0.830			
HE1 <- HE	0.877	0.876	0.904	0.760
HE2 <- HE	0.811			
HE3 <- HE	0.923			
MA1 <- MA	0.710	0.694	0.831	0.623
MA2 <- MA	0.853			
MA3 <- MA	0.799			

MRM1 <- MRM	0.819	0.876	0.888	0.666
MRM2 <- MRM	0.814			
MRM3 <- MRM	0.930			
MRM4 <- MRM	0.684			
N1 <- N	0.830	0.876	0.912	0.723
N2 <- N	0.845			
N4 <- N	0.879			
N5 <- N	0.846			
PG2 <- PG	0.816	0.866	0.859	0.676
PG4 <- PG	0.969			
PG5 <- PG	0.649			
PI1 <- PI	0.936	0.877	0.912	0.777
PI2 <- PI	0.921			
PI3 <- PI	0.779			
SM1 <- SM	0.926	0.905	0.903	0.703
SM2 <- SM	0.936			
SM3 <- SM	0.714			
SM4 <- SM	0.756			
SRC1 <- SRC	0.875	0.891	0.918	0.692
SRC2 <- SRC	0.808			
SRC3 <- SRC	0.764			
SRC4 <- SRC	0.842			
SRC5 <- SRC	0.865			
SS1 <- SS	0.975	0.905	0.912	0.726
SS2 <- SS	0.805			
SS3 <- SS	0.689			
SS4 <- SS	0.911			
U2 <- U	0.737	0.868	0.898	0.691
U3 <- U	0.891			
U4 <- U	0.926			
U5 <- U	0.754			
WT1 <- WT	0.850	0.876	0.923	0.800
WT2 <- WT	0.940			
WT3 <- WT	0.891			

Table 5.6b: Internal reliability and convergent validity, Pakistan context

	Outer loadings	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
DEE1 <- DEE	0.713	0.754	0.843	0.573
DEE2 <- DEE	0.768			
DEE3 <- DEE	0.766			
DEE4 <- DEE	0.780			
FIC2 <- FIC	0.854	0.869	0.910	0.718
FIC3 <- FIC	0.791			
FIC4 <- FIC	0.901			
FIC5 <- FIC	0.839			
HE1 <- HE	0.910	0.915	0.947	0.855
HE2 <- HE	0.946			
HE3 <- HE	0.919			
MA1 <- MA	0.930	0.838	0.826	0.622
MA2 <- MA	0.565			
MA3 <- MA	0.826			
MRM2 <- MRM	0.707	0.684	0.816	0.599
MRM3 <- MRM	0.730			
MRM4 <- MRM	0.873			
N1 <- N	0.760	0.778	0.855	0.597
N2 <- N	0.738			
N4 <- N	0.847			
N5 <- N	0.740			
PG1 <- PG	0.824	0.757	0.860	0.673
PG2 <- PG	0.865			
PG3 <- PG	0.768			
PI1 <- PI	0.932	0.757	0.812	0.598
PI2 <- PI	0.604			
PI3 <- PI	0.747			
SM1 <- SM	0.458	0.833	0.813	0.611
SM2 <- SM	0.847			
SM3 <- SM	0.952			
SRC3 <- SRC	0.880	0.922	0.945	0.812
SRC4 <- SRC	0.920			
SRC5 <- SRC	0.917			
SRC6 <- SRC	0.886			
SS2 <- SS	0.965	0.831	0.863	0.684
SS3 <- SS	0.847			
SS4 <- SS	0.635			
U3 <- U	0.906	0.914	0.918	0.736
U4 <- U	0.794			

U5 <- U	0.817			
U6 <- U	0.909			
WT2 <- WT	0.891	0.831	0.896	0.742
WT3 <- WT	0.906			
WT4 <- WT	0.784			

The above tables 5.6a and table no 5.6b show detailed analysis of the quality of data that includes the values for Outer Loadings, Cronbach's Alpha, Composite Reliability, and AVE. It can be seen in the above table 5.6a that several items have been eliminated from the analysis. It is due to the fact that these items had low factor loading on their corresponding construct. These items included SRC6, WT4, FIC1, FIC5, N3, PG1, PG3, U1, U6, SM5, and DEE1, DEE7, and DEE8. It is also evident in the above table 5.6b that all the values for outer loadings (except MA2, PI2, and SM1) are greater than 0.70. All the other items had outer loadings values less than 0.70, that is why they were eliminated from the final analysis. However, the three items, MA2, PI2, and SM1 were retained because of the satisfactory values of Cronbach's Alpha and AVE.

Other criteria for assessing the quality of the data are the Cronbach's Alpha and Composite Reliability. The threshold values for both these measures are 0.70 or more (Nunnally and Bernstein 1994; Heir et al., 2011). As evident in the above tables (5.6a and 5.6b), the values for both these measures are with the threshold range. Yet, the Cronbach's Alpha values for MRM and MA is 0 .694 and 0.684 in table 5.6a and 5.6b respectively which is slightly less than 0.70. The reason these constructs were retained is the corresponding value of AVE. When the value of AVE is greater than 0.50, an item or a construct can be retained if the values of the other measures are slightly lower Hair et al., (2006). Similarly, the AVE values of all other constructs are well above the cut off value of 0.50.

5.3.1.2 Validity

Another important way to check the quality of the data is to check the validity of the data which is measured through convergent validity (CV) and discriminant validity (DV). The convergent validity is examined through AVE and outer loadings. As described by Cooper and Schindler (2011) CV refers to the degree to which scores on one scale corelate with scores on other scales designed to assess the same construct. As a general rule of thumb, AVE should have a score of .50 or greater whereas, outer loadings should have a value of 0.708 or greater is considered satisfactory

Avkiran (2017). However, according to Chin et al., (1997), items with an outer loading of 0.6 might also be considered acceptable. As shown in previous section 5.3.1.1 in tables 5.6a and 5.6b, the data has shown no issue of convergent validity.

According to Hair et al., (2017), discriminant validity (DV) means that the measures of the given construct is different from those of the other constructs in the model. The research in hand used two methods to assess DV; first, DV is confirmed through Heterotrait-Monotrait Ratio (HTMT) Henseler et al., (2015) test. Hair et al., (2017) stated that HTMT value above 0.90 suggests an absence of DV. In addition, a more conservative cut-off value for HTMT is 0.85 Henseler et al., (2015). The results of the HTMT indicate that the research study in hand did not violate the DV's assumptions, as illustrated in tables 5.7a and 5.7b. Additionally, the researcher used the Fornell and Larcker (1981) criterion - comparing the correlation between the constructs and the square root of the AVE for that construct. In order to achieve DV, Fornell and Larcker (1981) stated that the square root of the AVE for each latent variable must exceed the correlation value for the same construct. As shown in tables 5.8a and 5.8b, the results indicate acceptable DV, with the AVE square root values being greater than the correlation values in the rows and columns meeting the criteria stated by Fornell and Larcker (1981).

Table 5.7 a: HTMT values, Pakistan context

	DEE	FIC	HE	MA	MRM	N	PG	PI	SM	SRC	SS	U	WT
DEE													
FIC	0.270												
HE	0.375	0.303											
MA	0.111	0.087	0.055										
MRM	0.516	0.613	0.560	0.054									
N	0.395	0.877	0.412	0.084	0.853								
PG	0.674	0.585	0.670	0.068	0.879	0.681							
PI	0.063	0.066	0.181	0.082	0.175	0.107	0.151						
SM	0.110	0.081	0.041	0.147	0.070	0.097	0.067	0.084					
SRC	0.378	0.315	0.019	0.072	0.572	0.427	0.701	0.186	0.061				
SS	0.066	0.064	0.166	0.091	0.188	0.106	0.141	0.165	0.087	0.170			
U	0.079	0.050	0.071	0.149	0.079	0.048	0.062	0.058	0.113	0.058	0.060		
WT	0.107	0.134	0.088	0.112	0.130	0.113	0.119	0.081	0.103	0.099	0.070	0.179	

Table 5.7 b: HTMT values, Italy context

	DEE	FIC	HE	MA	MRM	N	PG	PI	SM	SRC	SS	U	WT
DEE													
FIC	0.134												
HE	0.082	0.189											
MA	0.184	0.112	0.095										
MRM	0.066	0.070	0.062	0.111									
N	0.225	0.092	0.091	0.245	0.130								
PG	0.065	0.077	0.068	0.122	0.120	0.136							
PI	0.083	0.116	0.248	0.036	0.060	0.070	0.064						
SM	0.156	0.118	0.184	0.066	0.085	0.088	0.080	0.070					
SRC	0.121	0.200	0.083	0.122	0.153	0.106	0.127	0.081	0.119				
SS	0.094	0.079	0.061	0.077	0.058	0.182	0.050	0.154	0.308	0.073			
U	0.065	0.199	0.054	0.165	0.094	0.160	0.086	0.143	0.138	0.222	0.154		
WT	0.101	0.118	0.227	0.090	0.067	0.111	0.055	0.122	0.055	0.100	0.091	0.067	

Table 5.8 a: Fornell-Larcker criterion, Pakistan context

	DEE	**FIC**	**HE**	**MA**	**MRM**	**N**	**PG**	**PI**	**SM**	**SRC**	**SS**	**U**	**WT**
DEE	**0.757**												
FIC	-0.234	**0.847**											
HE	-0.316	0.268	**0.925**										
MA	0.137	-0.076	0.032	**0.789**									
MRM	-0.422	0.466	0.469	-0.022	**0.774**								
N	-0.332	0.779	0.358	-0.038	0.699	0.773							
PG	-0.518	0.475	0.561	-0.037	0.693	0.536	**0.820**						
PI	0.033	-0.026	-0.176	0.058	-0.139	-0.093	-0.115	**0.773**					
SM	0.129	-0.052	0.008	0.853	-0.013	-0.007	-0.032	0.069	**0.782**				
SRC	-0.320	0.281	0.938	0.035	0.486	0.370	0.589	-0.180	0.004	**0.901**			
SS	0.062	-0.019	-0.149	0.065	-0.140	-0.081	-0.104	0.841	0.059	-0.156	**0.827**		
U	0.047	0.020	-0.047	-0.003	-0.010	0.020	-0.034	-0.037	0.046	-0.021	-0.024	**0.858**	
WT	0.084	-0.111	-0.076	0.094	-0.102	-0.094	-0.089	-0.025	0.051	-0.085	-0.057	0.154	**0.862**

Table 5.8 b: Fornell-Larcker criterion, Italy context

	DEE	FIC	HE	MA	MRM	N	PG	PI	SM	SRC	SS	U	WT
DEE	**0.775**												
FIC	0.111	**0.811**											
HE	0.044	-0.123	**0.872**										
MA	0.138	0.094	0.064	**0.789**									
MRM	-0.033	-0.037	-0.019	0.076	**0.816**								
N	0.206	-0.052	0.092	0.173	0.138	**0.850**							
PG	-0.036	-0.047	-0.022	0.088	0.962	0.150	**0.822**						
PI	0.064	-0.051	0.218	-0.018	-0.033	0.030	-0.059	**0.881**					
SM	0.123	-0.057	0.138	-0.008	-0.066	0.044	-0.043	0.023	**0.839**				
SRC	0.111	0.127	0.068	0.061	-0.153	-0.086	-0.129	-0.033	-0.035	**0.832**			
SS	0.126	-0.048	0.000	0.015	-0.039	-0.107	-0.025	-0.106	0.370	0.000	**0.852**		
U	-0.050	-0.119	0.043	0.028	0.087	0.102	0.072	0.091	-0.126	-0.188	-0.108	**0.831**	
WT	-0.087	0.110	-0.183	0.046	0.044	0.071	0.023	-0.095	0.018	-0.074	0.068	-0.006	**0.894**

5.4 Model Fitness

The researcher ran model fitness indices to check the suitability of the model in both contexts. Currently, the only approximate model fit criterion implemented for PLS path modeling is the standardized root mean square residual (SRMR) Henseler et al., (2016). As can be derived from its name, the SRMR is the square root of the sum of the squared differences between the model-implied and the empirical correlation matrix, i.e., the Euclidean distance between the two matrices. A value of 0 for SRMR would indicate a perfect fit and generally, an SRMR value less than 0.05 indicates an acceptable fit Byrne (2008). A recent simulation study shows that even entirely correctly specified model can yield SRMR values of 0.06 and higher Henseler *et al.*, (2014). Therefore, a cut-off value of 0.08 as proposed by Hu and Bentler (1999) appears to be more adequate for PLS path models. Another useful approximate model fit criterion could be the Bentler-Bonett index or normed fit index (NFI) Bentler and Bonett (1980). The suggestion to use the NFI in connection with PLS path modeling can be attributed to Lohmöller (1989). For factor models, NFI values above 0.90 are considered as acceptable Byrne (2008). For composite models, thresholds for the NFI are still to be determined. Because the NFI does not penalize for adding parameters, it should be used with caution for model comparisons. In general, the usage of the NFI is still rare Henseler et al., (2016).

In the context of Pakistan, the value of SRMR was 0.079 and the value of NFI was 0.908 as shown in the table 5.10a below.

Table 5.10 a: Model Fit Indices, Pakistan context

Index	Saturated Model	Estimated Model	Threshold	Decision
SRMR	0.079	0.079	<0.08	Valid
NFI	0.908	0.908	>0.9	Valid

Table 5.10 b: Model fitness, Italy context

Index	Saturated Model	Estimated Model	Threshold	Decision
SRMR	0.065	0.065	<0.08	Valid
NFI	0.960	0.960	>0.9	Valid

As shown in the above tables 5.10a and 5.10b, the SRMR values are of 0.079 and .065 in the context of Pakistan and Italy respectively indicating that both models have a good fit, as these values indicate that the models' residuals are relatively small. Furthermore, the NFI value of 0.908 in the context of Pakistan and .960 in the context of Italy indicate that the model explains a high proportion of the variance in the observed data. Therefore, based on these fit indices, it is concluded that the structural model fits the data well and explains a significant proportion of the variance in the observed data.

5.5 Structural Model

The second model in the SEM analysis is the structural model which is used to examine the causal relationship between constructs and test the hypotheses. In structural model, two steps are taken; first is to measure the path coefficients and the second is to determine if the outputs are significant or not. Path coefficients represent the strength and direction of the relationships between the latent constructs or observed variables in the model. Path coefficients are standardized coefficients that range from -1 to +1. A positive path coefficient indicates a positive relationship between the variables, while a negative path coefficient indicates a negative relationship. The absolute value of the path coefficient represents the strength of the relationship, with higher values indicating stronger relationships. To interpret path coefficients, the magnitude, direction, and statistical significance can be examined. A path coefficient with a large absolute value indicates a strong relationship between the variables, while a small absolute value indicates a weak relationship. The sign of the coefficient indicates whether the relationship is positive or negative. It is also important to consider the statistical significance of the path coefficient. If the coefficient is statistically significant, it means that the relationship between the variables is unlikely to have occurred by chance alone. However, if the coefficient is not statistically significant, it means that the relationship may be due to chance and should be interpreted with caution.

In Smart-PLS, the method used for testing the significance of the relationship is called bootstrapping. In this process, the researcher used 5,000 reiterations of the sample to test the significance. The bootstrapping technique with resampling (5,000 resamples) was employed to estimate the statistical significance of the hypothesized model Hair et al., (2017). The following tables 5.11a and 5.11b show the results of bootstrapping that includes path coefficients values along with the t-statistics and p-values in both contexts.

Table 5.11a: Results of structural model assessment, Italy context

Hypothesis	Path	β	T statistics	P values	Results
H1a	SRC -> DEE	0.203	8.155	0.000	Supported
H1a	HE -> DEE	0.325	5.247	0.005	Supported
H1a	WT -> DEE	0.220	6.369	0.000	Supported
H1a	FIC -> DEE	0.175	4.969	0.003	Supported
H1a	N -> DEE	0.241	2.812	0.005	Supported
H1a	MRM -> DEE	0.175	5.021	0.000	Supported
H1a	PG -> DEE	0.213	7.026	0.002	Supported
H1a	U -> DEE	0.317	9.178	0.000	Supported
H1a	SS -> DEE	0.139	4.199	0.000	Supported
H1a	PI -> DEE	0.171	6.778	0.001	Supported
H1a	MA -> DEE	0.282	4.940	0.000	Supported
H1a	SM -> DEE	0.296	5.850	0.000	Supported

* T-statistics > 1.96
**P-values <0.05

Table 5.11 b: Results of structural model assessment, Pakistan context

Hypothesis	Path	β	T statistics*	P values**	Results
H1b	SRC -> DEE	0.168	7.421	0.000	Supported
H2b	HE -> DEE	0.592	8.583	0.000	Supported
H3b	WT -> DEE	0.431	3.630	0.001	Supported
H4b	FIC -> DEE	0.430	5.245	0.000	Supported
H5b	N -> DEE	0.146	1.059	0.289	Not supported
H6b	MRM -> DEE	0.587	3.926	0.000	Supported
H7b	PG -> DEE	-0.429	5.220	0.000	Not supported
H8b	U -> DEE	0.217	5.227	0.000	Supported
H9b	SS -> DEE	0.398	3.737	0.000	Supported
H10b	PI -> DEE	-0.129	4.074	0.000	Not supported
H11b	MA -> DEE	0.068	0.369	0.712	Not supported
H12b	SM -> DEE	0.264	8.329	0.003	Supported

* T-statistics > 1.96
**P-values <0.05

It can be seen in the above table 5.11b that two values policy and governance (PG) and physical infrastructure (PI) have a negative sign which imply that PG and PI have a negative effect on DEE. The rest of the values have a positive sign implying positive effect on the dependent variable, DEE. It can also be seen that the t-values for all the variables (except market accessibility (MA) and networking (N) are greater than 1.96 which means that all the values are significant. Likewise, all the p-values (except MA and N) are less than 0.05 implying a significant effect on DEE.

5.5.1 Model Summary

According to Hair et al. (2017) that researchers should also report the coefficient of determination (R^2) in addition to describing the significance of the relationships and effect size (f^2). Consequently, in this research study, f^2 and R^2 values were examined, as illustrated in tables

5.12a,b and 5.13a,b respectively. R^2 is a statistical measure that represents the proportion of variation in the dependent variable that is explained by the independent variables in the model. Furthermore, f^2 indicates effect size; how much an independent variable contributes to the dependent variable's R^2. Cohen (1988) stated that cut-off values for measuring effect size are: f^2 = 0.35, 0.15, 0.02, indicative of large, medium, and small effect sizes, respectively. The f^2 values in the context of Italy are shown in table 5.12a. This presents that finance/investment capital (FIC), market accessibility (MA), physical infrastructure (PI), social media (SM), supportive and risk-taking culture (SRC), and worker talent (WT) have a minimal impact on the R^2 value as their f^2 values are less than 0.15 (Cohen, 1988). In the meantime, universities (U) and policy and governance (PG) significantly impacted the R^2 value as they have f^2 values greater than 0.35 (Cohen, 1988). In contrast, the history of entrepreneurship (HE), networking (N), mentors and role model (MRM), and supportive services (SS) have a medium effect as they have f^2 values greater than 0.15 but less than 0.35 (Cohen, 1998).

Table 5.12a: Effect size, Italy context

	f^2	Effect Size
DEE		
FIC	0.118	Small
HE	0.283	Medium
MA	0.104	Small
MRM	0.196	Medium
N	0.224	Medium
PG	0.483	Substantial
PI	0.088	Small
SM	0.051	Small
SRC	0.139	Small
SS	0.330	Medium
U	0.365	Substantial
WT	0.118	Small

Similarly, in the context of Pakistan, the f^2 values in table 5.12b given below shows that market accessibility (MA), mentors and role models (MRM), policy and governance (PG), physical infrastructure (PI), university (U), and worker talent (WT) have a minimal impact on the R^2 value as their f^2 values are less than 0.15 Cohen (1988). At the same time, history of entrepreneurship

(HE) and supportive and risk-taking culture (SRC) significantly impacted the R^2 value as they have f^2 values greater than 0.35(Cohen (1988). In contrast, the finance and investment capital (FIC), networking (N), social media (SM), and supportive services (SS) have a medium effect as they have f^2 values greater than 0.15 but less than 0.35 Cohen (1998).

Table 5.12b: Effect Size, Pakistan Context

	f^2	Effect Size
DEE		
FIC	0.320	Medium
HE	0.415	Substantial
MA	0.012	Small
MRM	0.105	Small
N	0.179	Medium
PG	0.117	Small
PI	0.007	Small
SM	0.214	Medium
SRC	0.513	Substantial
SS	0.193	Medium
U	0.113	Small
WT	0.040	Small

As discussed in previous section R^2 is a statistical measure that represents the proportion of variation in the dependent variable that is explained by the independent variables in the model. It ranges from 0 to1, with higher values indicating that the model is better at explaining the variation in the dependent variable. The R^2 value is 0.908 and 0.669 in the contexts of Italy and Pakistan respectively which mean that the independent variables in the model explain about 90.8% and 66.9% of the variation in the dependent variable.

Adjusted R^2 is another statistical measure that considers the number of independent variables in the model. It gives more accurate measure of the goodness of fit of the model than R^2, especially when there are many independent variables. The adjusted R^2value is always lower than the R^2 value, and it penalizes the model for including independent variables that do not improve the fit of the model. In this case, the adjusted R^2 value in the context of Italy is 0.898 and in the context of Pakistan is 0.624, which mean that the independent variables in the model explain about 89.8% and 62.4% of the variation in the dependent variable respectively, considering the number of independent variables in the model.

Table 5.13 a: Coefficient of Determination, Italy context

	R^2	R^2- adjusted
DEE	0.902	0.898

Table 5.13 b: Coefficient of Determination, Pakistan Context

	R^2	R^2 – adjusted
DEE	0.669	0.624

Chapter 6

Findings and Research Contribution

6.1 Introduction

Not only academics but practitioners too intensively investigated the entrepreneurial ecosystem phenomenon since the last decade. The research in entrepreneurial ecosystems has remained very diverse. In the beginning, research on entrepreneurial ecosystems lacked a central focus. Therefore, some authors concentrated on expanding the scope of entrepreneurship by increasing the number of entrepreneurs, businesses, self-employment prospects, or even employment opportunities. In addition, several authors explained the entrepreneurial ecosystem concept with the help of framework enlisting different elements, components, attributes. They further suggested that presence of these attributes, components, elements are mandatory, however, are subject to contexts. Whilst these frameworks provide us an idea regarding the mixture of ingredients of entrepreneurial ecosystem, the effect of an individual ingredient in the development of EE is the topic of interest to be investigated. The measurement of the elements of the entrepreneurial ecosystems is not completely obvious because this approach is theoretically still understudied (Stam, 2015; Stam and Bosma, 2015). The research in hand has attempted to explore the effect of each attribute on the development of entrepreneurial ecosystem in developing and developed context simultaneously with an intention to provide deep insights to policy makers, entrepreneurs and other EE stakeholders while formulating their policies regarding the components of EE.

In this chapter, the findings are interpreted and discussed in relation with previous entrepreneurial ecosystem research. In this context, the findings are discussed (section 6.2) in order to answer the five research questions including the hypotheses of this research study. First, findings related to research question 1: "What is the effect of different cultural attributes (supportive and risk-taking culture, history of entrepreneurship) on EE development in the context of Pakistan and Italy? It will be discussed in section 6.2.1. (Findings 1). Second, this research also answers research question 2: "What is the effect of social attributes (worker talent, investment capital, networks, mentors and role models) on EE development in the context of Pakistan and Italy?" the related findings are discussed in section 6.2.2 (Findings 2). The research in hand answers the question related to research question 3: "What is the effect of material attributes (policy and governance, universities, support services, physical infrastructure, open markets) on EE development in the context of Pakistan and Italy?" is discussed in section 6.2.3 (Findings 3). Finally, the research study answers the research questions 4: What is the effect of social media on EE development in the context of Pakistan? The findings are discussed in 6.2.4 and the findings regarding the question no 5 "What is the effect of social media on EE development in the context of Italy?" are discussed in section 6.2.5. Furthermore, research implications for both academics and practitioners will be discussed in light of the findings of this study (section 6.3). Finally, limitations of current study and avenues for future research are discussed in section 6.4.

6.2 Discussion of Key Findings

As stated above, the key findings of this study will be discussed and interpreted in four main stages. These stages correspond to: 1. Investigating the effect of cultural attributes on EE development in developing and developed contexts. 2. Investigating the effect of social attributes on the EE development in developing and developed contexts. 3. Investigating the effect of material attributes on EE development in developing and developed contexts. 4. Investigating the effect of social media on EE development in the developing and developed contexts.

6.2.1 Investigating the effect of cultural attributes on EE development

As discussed thoroughly in chapter 2 and chapter 3, culture has long been recognized as an important component of entrepreneurial ecosystem in the extent literature (see for example: Neck et al., 2004; Isenberg, 2010; Stam, 2015; Spigel, 2017). The nature of culture can include beliefs, values, norms, attitudes, symbols and stories. Culture is considered as one of the crucial components by organizational researchers in stimulating innovation and creativity. Cultural beliefs and histories of entrepreneurship are considered as the main attributes of the culture Spigel (2015). Furthermore, entrepreneurial culture is considered as one of the critical components of EE success. In this regard, based on the previous literature, the researcher proposed the following hypotheses. H1a: Supportive and risk-taking culture (SRC) will have a positive effect on the entrepreneurial ecosystem development in Molise, Italy.

H1b: Supportive and risk-taking culture (SRC) will have a positive effect on the entrepreneurial ecosystem development in Khyber Pakhtunkhwa, Pakistan.

Hypothesis 2a: H2a: The history of entrepreneurship will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy.

Hypothesis 2b: H2b: The histories of entrepreneurship culture will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan.

The results of this research study shown in table 5.11a and table 5.11b confirm the acceptance of hypotheses H1a, H1b, H2a and H2b. The results explain that in both contexts i.e. Pakistan and Italy, cultural attributes have positive significant effect on EE development. The results in table 5.11a shows the positive significant effect of SRC on DEE in Italy context with β values equal to 20% at ($p<.05$, $t>1.96$). In the context of Pakistan, supportive and risk-taking culture has a positive significant effect with on DEE with β values equal to 16.7% at ($p<.05$, $t>1.96$). Also, HE has positive significant effect of 32.5 % and 59.2% at ($p<0.5$, $t>1.96$) on DEE in the contexts of Italy and Pakistan. These results are aligned with previous research (Neck et al., 2006; Isenberg, 2010; Stam, 2015; Spigel, 2017) considering culture as one of the crucial components of entrepreneurial ecosystem.

6.2.2. Investigating the effect of social attributes on DEE

The social attributes are the resources consist of or acquired through social network within a region. The previous research of (Nijkamp, 2003; Stuart & Sorenson, 2005) confirmed the importance of social network and social capital to entrepreneurship. There are four main social attributes of entrepreneurial ecosystem, namely worker talent, finance / investment capital, network and mentors and role models. The research in hand developed and tested the following hypotheses regarding social attributes.

6.2.2.1 Effect of worker talent on DEE

The hypotheses H3a: The worker talent (WE) will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy and H3b; the worker talent will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan regarding worker talent were developed. The statistical results driven from structural equation model explains that WE have positive significant effect on DEE. Table 5.11a and table 5.11b show that worker talent has positive significant ($p<.05$, $t>1.96$) effect on the DEE in both contexts, however, the intensity of the effect is different in both contexts. In the context of Italy as shown in table 5.11a WT has an effect of 22% on DEE supporting H3a. Whereas table 5.11b shows that WT has positive effect of 43.1% on the DEE in Khyber Pakhtunkhwa, Pakistan supporting H3b.

6.2.2.2 Effect of finance/investment capital on DEE

In the current study, two hypotheses regarding finance / investment capital were developed, for instance, H4a finance / investment capital will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy and H4b finance / investment capital will have positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan. Table 5.11a and 5.11b show that the finance / investment has positive significant effect on DEE with β= 43% and 17.5% at ($p<.05$, $t>1.96$) in the contexts of Italy and Pakistan respectively. Both H4a and H4b hypotheses are accepted. Based on the results of this research study, it is concluded that finance / investment capital has more influence in building entrepreneurial ecosystem in the context of Molise, Italy as compare to Khyber Pakhtunkhwa, Pakistan.

6.2.2.3 Effect of Network (N) on DEE

Hypothesis H5a stated that network will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy and Hypothesis H5b stated that network will have positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan. The results in table 5.11a shows that the proposed hypothesis H5a is affirmed with β=24.1% at ($p<.05$; $t>1.96$) in the context of Italy, whereas, contrary to proposed hypothesis H5b, table 5.11b shows the non-significant effect of network on DEE among the surveyed respondents. Therefore, H5b is not supported as the p-value is greater than .05.

6.2.2.4 Effect of mentor and role model (MRM) on DEE

According to H6a mentor and role model (MRM) has positive effect on the DEE in Molise, Italy and H6b mentor and role model (MRM) has positive effect on the DEE in Khyber Pakhtunkhwa Pakistan. In this regard the results of the study accepted H6a and H6b as the β values are 17.5% and 58.7% in the context of Italy and Pakistan respectively at ($t>1.96$, $p<.05$). This further suggested that role of mentors and role models is more effective in Pakistan as compare to Italy while building entrepreneurial ecosystem among the respondents surveyed.

6.2.3 Investigating the effects of material attributes on DEE

The material attributes of an ecosystem refer to the attributes of an ecosystem that are physically present in the area. This physical presence may be a physical location, such as university, or formal rules such as entrepreneurial policies and regulated markets. Material attributes of an ecosystem consist of four types namely, policy and governance, universities, support services, and infrastructure.

6.2.3.1 Effect of policy and governance (P&G) on DEE

Hypothesis H7a argued that policy and governance will have a positive effect on the development of entrepreneurial ecosystem in Molise, Italy and H7b stated that policy and governance will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan. The statistical evidence derived from the structural model shows contrary results to the proposed hypothesis H7b. Table 5.11b shows that P&G has a negative effect on DEE contradicting our hypothesis H7b. Whereas table 5.11a shows that P&G has a positive significant effect on DEE at β value equals to 21.3% at ($t > 1.96$, $p<.05$). Therefore, the results of the research study support the H7a and is accepted whereas H7b is not supported by the statistical results and rejected**.**

6.2.3.2 Effect of universities (U) on DEE

Hypotheses H8a in this research study stated that universities will have a positive effect on the development of entrepreneurial ecosystem in Molise, Italy and H8b stated that universities will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa**.** The analysis results affirmed both proposed hypotheses regarding univeristies; H8a and H8b. The results provided in table 5.11a and table 5.11b justify and support H8a and H8b with β value equals to 31.7% and 21.7% at ($t>1.96$, $p<.05$) in the contexts of Italy and Pakistan respectively. It is further suggested that universities have positive role in building entrepreneurial ecosystem in Pakistan and Italy, however, its positive influence might be improved up to greater than 50% by collaborating with industry and the support of government.

6.2.3.3 Effect of support services (SS) on DEE

The hypotheses H9a and H9b posited that supportive services has a positive effect on the DEE in Molise region of Italy and supportive services has a positive effect on the DEE in Khyber Pakhtunkhwa, province of Pakistan. The results shown in table 5.11a and table 5.11b confirm the hypothesis H9a and H9b with β value equals to 3.1% at $p<.05$ and $t>1.96$ in the context of Italy and 39.8% at $p<.05$ and $t>1.96$ in the context of Pakistan respectively. The results in both contexts are significant leading to the acceptance of H9a and H9b.

6.2.3.4 Effect of infrastructure on DEE

Hypothesis H:10a of the current research study claimed that the infrastructure will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy and Hypothesis H:10b stated that the infrastructure will have positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan. The empirical results of the structural model show that H:10a should be accepted as table 5.11a demonstrates positive β value at $p<.05$ and $t>1.96$ confirming the significance of the results, however, H:10b is not supported by the empirical evidence of the structural model of this study. β value in table 5.11b is negative showing the inverse relationship of PI with DEE. It is due to the poor infrastructure of electricity and other telecommunication facilities in Khyber Pakhtunkhwa Pakistan. Whereas PI has positive significant relationship with DEE in Molise, Italy at β value 17.1% ($p<.005$, $t>1.96$).

6.2.3.5 Effects of market accessibility on DEE

H:11a of this research study stated that the market accessibility will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy. The statistical evidence derived from the result of structural equation model shows that H11a is supported. Table 5.11a shows that the effect of MA on DEE is 28.2% at $p<0.05$, $t>1.96$. Whereas the empirical evidence obtained from the structural model shows that H11b is not supported, which hypothesized that market accessibility will have positive effect on development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan. The results suggested a non-significant relationship with β value 6.8% at a significance level of 0.712 (i.e. greater than 0.05). Therefore, this study concluded that market accessibility does not play significant role in DEE in the context of Khyber Pakhtunkhwa, Pakistan.

6.2.4 Effect of social media on DEE

H12a of the current study stated that the social media will have positive effect on the development of entrepreneurial ecosystem in Molise, Italy. The results in table 5.11a shows that the positive effect of SM on DEE is 29.6% and significant at $p<.05$ and $t>1.96$. This result suggests that SM has positive role in the development of entrepreneurial ecosystem in Molise, Italy. H12b of the research in hand stated that the social media will have a positive effect on the development of entrepreneurial ecosystem in Khyber Pakhtunkhwa, Pakistan. This hypothesis is also supported by the results derived from the structural model shown in table 5.11b. Table 5.11b shows that SM has positive effect of 26.4% $p<.05$ and $t>1.96$ on DEE in the context of Khyber Pakhtunkhwa, Pakistan.

6.3 Research contribution

The concept of EE has been used as a framework, consists of attributes, elements, actors, pillars to explain entrepreneurial activities within regions and industrial sectors (Cohen, 2006; Neck et al., 2004; Spigel, 2017; Stam, 2015). Current work on EEs focuses on documenting the list of elements of system, with less an emphasis placed on the specific contribution of individual drivers and their contribution Spigel (2016) in EE development. In addition, despite the exponential growth in EE research in the last couple of decades, the EE phenomenon is yet to be explored especially in developing nations. In this context, this research study adds to the body of knowledge on EE construct in terms of contribution of individual elements in EE development in developing and developed contexts simultaneously.

The key contributions of the current research are discussed below:

6.3.1 Contextual contribution

Research on entrepreneurial ecosystem has garnered significant attention from both academics and practitioners. Several scholars have delved into the literature to explore the various components that constitute EE (Cohen, 2006; Isenberg, 2010; Fred, 2012; Stam, 2015; Spigel, 2017). These studies have shed light on the multifaceted nature of EE and have emphasized its importance in fostering entrepreneurial activities and economic growth. In addition, Isenberg (2011) has notably highlighted the influence of contextual factors on the development of EE. It is recognized that the specific elements present within a particular context play a pivotal role in shaping the entrepreneurial ecosystem. This insight underscores the dynamic and context-specific nature of EE.

However, despite the growing body of research on EE, there remains a substantial gap in the understanding of how each individual ingredient contributes to EE development. To the best of the researcher's knowledge, there has been no comprehensive effort to systematically assess the relative significance of these ingredients in EE development across two distinct contexts simultaneously.

This research study has addressed this crucial gap by conducting empirical investigations into the contribution of each element in the development of entrepreneurial ecosystems. What makes this study particularly noteworthy is its intent to bridge the aforementioned knowledge void by exploring and comparing the importance of each component in the context of a developed economy, Italy, and a developing one, Pakistan, concurrently.

6.3.2 Methodological contribution

The research in hand used mixed methods research which incorporated semi-structure interviews and questionnaire survey into a single research design. Along with reading extensive literature on EE, the outcomes of semi-structure interviews were used to thoroughly explore the construct of EE and its attributes. This further led to the development of a theoretical framework which illustrates different relationships between all the constructs. The proposed framework was subsequently validated through expert reviews and a large-scale questionnaire survey, employing SEM analysis assessment.

By adopting the mixed method approach, this research contributes to the empirical studies of EE in a pioneering manner. It not only broadens the scope of EE research but also enhances the depth of analysis by leveraging both quantitative data, through SEM, and qualitative insights gathered through semi-structure interviews. Within this context, the current study set a new standard for academics, researchers and practitioners in the field to carry out future research. As far as the empirical studies of EE are concerned, this research is one of the first to examine EE development and relative importance of each element/attribute in developing and developed context simultaneously using both quantitative and qualitative methods in the same research design.

6.3.3 Theoretical contribution

The findings of the current research make a significant contribution to our understanding of the relative importance of individual attributes in the context of Entrepreneurial Ecosystem (EE) development in two different contexts. This research extends our knowledge of the critical components within the broader framework of EE, shedding light on their significance and relevance. One noteworthy addition to the existing literature on EE frameworks is the introduction of a novel element, social media (SM), which emerged as a crucial factor based on feedback from EE stakeholders obtained through semi-structure interviews.

Social media plays a pivotal role in contemporary business environments, serving as a powerful medium for marketing campaigns, advertising, fostering and nurturing consumer relationships, and offering an accessible channel for information sharing with stakeholders connected through various social media platforms. Given the evolving landscape of business and technology, companies today are compelled to enhance their social media usage capabilities to stay competitive and thrive in the entrepreneurial ecosystem.

Furthermore, this research underscores the pivotal role of entrepreneurs in EE development. To assess this, a specialized and new scale was developed and employed to collect primary data from entrepreneurs in both the Pakistani and Italian contexts. The reliability and validity of this scale were rigorously tested and confirmed by EE experts, and appropriate statistical tools were employed to ensure the soundness of the survey instrument.

The utilization of this newly developed scale proved to be invaluable in quantitatively assessing the individual contributions of each element within the EE framework, providing a deeper understanding of their respective roles in the context of both Pakistan and Italy. This research not only emphasizes the importance of diverse attributes within EE but also underscores the necessity for businesses and entrepreneurs to adapt and harness the power of social media in their strategies to thrive in today's dynamic and interconnected entrepreneurial landscape.

6.3.4 Practical contribution

The research findings presented in this study hold significant practical implications for an array of EE stakeholders, particularly small and medium-sized enterprises (SME) policymakers, EE builders, entrepreneurs, and entrepreneurship support organizations. The primary objective of this research was to delve into the relative importance of contextual factors that influence EE development in two different contexts, Pakistan and Italy. By doing so, this research has effectively facilitated a comprehensive understanding of how each EE element influences the EE development, providing valuable insights that can be of immense benefit to EE builders, SME owners and managers.

SMEs are the backbone of many economies and understanding the dynamics of their EE is pivotal for their sustainable growth. The findings of this research offer EE builders, SME owners and managers in both Pakistan and Italy a nuanced understanding of the role that each EE element plays in the EE from the perspective of entrepreneurs themselves. This understanding is essential for crafting strategies and policies that can enhance the operational environment for SMEs that eventually lead to sustainable EE.

For EE builders, these research findings are invaluable in shaping their policies regarding EE development. Armed with knowledge of the relative importance of EE elements, EE builders make better decisions what elements should be focused to facilitate EE development. One noteworthy implication is the endorsement of social media as a potent element with significantly positive role in EE development in both Pakistan and Italy. EE stakeholders can harness the power of social media for various functions to better align with the EE.

On a broader scale, these research findings can be instrumental in informing government policies and initiatives related to EE development. For instance, in Khyber Pakhtunkhwa, Pakistan, where the government is collaborating with China to foster EE development, the insights provided by this research can guide policymakers in tailoring their strategies to the specific needs and dynamics of the region. By understanding the relative importance of EE elements, policymakers can make well-informed decisions on resource allocation, and support mechanisms for EE development.

Likewise, the findings of this research can also extend to regions like Molise, Italy, where the regional government is endeavoring to build and to strengthen the EE. The insights offered here can serve as a blueprint for regional government, helping them identify which EE elements require special attention and which have a more modest impact. This knowledge can streamline the efforts to create a more conducive environment for entrepreneurship.

In conclusion, the research not only sheds light on the significance of various EE elements but also categorizes their effects as small, medium, or substantial on EE development. It equips EE builders, SMEs, policymakers, and other EE stakeholders with knowledge needed to make better decisions and devise their strategies for improving EE. Furthermore, it has a broader regional and governmental relevance, guiding policy initiatives in regions aiming to promote and sustain entrepreneurship. Ultimately, these research findings have the potential to drive positive changes in terms of EE development in Pakistan and Italy.

6.4 Recommendations

Considering the research implications, i.e., contextual, methodological, theoretical and practical implications, the researcher, therefore, implores the government (study context) via EE builders, entrepreneurship policymakers, higher education institution management, and other entrepreneurship stakeholders to understand the individual contribution and importance of each EE element in the development of entrepreneurial ecosystem during policy formulation regarding EE development. Some of the prevalent recommendations are mentioned as under:

Recommendation 1

The findings of this research study indicate that the history of entrepreneurship and the dissemination of success stories exert a positive and significant influence on EE development in the contexts of Pakistan and Italy as well. Successful entrepreneurial narratives serve as sources of inspiration, providing aspiring entrepreneurs with role models and insights into the challenges and opportunities associated with starting and scaling ventures. Moreover, the sharing of stories detailing setbacks and failures is found to be equally impactful, as it fosters a culture of resilience and learning from adversity among entrepreneurs. It is recommended that structured platforms be instituted, wherein successful entrepreneurs not only share their achievements but also illuminate examples of adversity, stemming pivotal insights and lessons.

Recommendation 2

Governmental support mechanisms should strategically account for numerous positive externalities associated with the promotion of networks through events. Such initiatives can yield benefits such as knowledge acquisition from experienced entrepreneurs, heightened legitimacy for entrepreneurs within their respective networks, facilitation of relationship-building with the broader business community, and enhanced access to diverse talents, resources, and funding avenues.

The establishment of a formal and informal network is recommended to educate nascent entrepreneurs on local norms, values, and available resources within the startup community. In this context, community facilitators and entrepreneurship supporting organization representative assume a pivotal role in cultivating startup communities and fostering entrepreneurship within a given region. Their responsibilities may encompass managing the integration of newcomers, nurturing social relationships through both physical events and digital platforms, bridging the gap between knowledge supply and demand, and cultivating an inspirational environment conducive to entrepreneurial endeavors.

Recommendation 3

Furthermore, in both the contexts of Pakistan and Italy, universities exert considerable influence over the entrepreneurial ecosystem (EE) development. These academic institutions play a pivotal role in establishing robust linkages with the ecosystem, facilitating the acquisition and dissemination of strategic inputs essential for entrepreneurial endeavors. The flow of knowledge and information within this nexus serves to catalyze innovation and fortify entrepreneurial activities. Consequently, it is recommended that policy makers are urged to undertake initiatives aimed at cataloging regional capabilities, expanding entrepreneurial education to university courses and linking academic institutions with industries to enhance entrepreneurial activities in both contexts.

Recommendation 4

The results of the research study in hand shows a significant positive effect of Finance / investment on the EE development in KPK Province of Pakistan and Molise Region of Italy. It is recommended for regional governmental bodies to strategically prioritize initiatives that not only serve to amplify entrepreneurial awareness with regard to availability of diverse financial avenues but also actively facilitate forums for meaningful engagement between entrepreneurs and potential investors.

Recommendation 5

This study underscores the pivotal role of infrastructure in the development of entrepreneurial ecosystems. Unfortunately, the Khyber Pakhtunkhwa region of Pakistan has poor infrastructure system that hinders the entrepreneurial activities in the region. The study in hand recommends strategic measures for the government of Khyber Pakhtunkhwa to address electricity shortages for SMEs, enhance telecom network coverage, and upgrade road and railway tracks to foster entrepreneurial activities in the region. On the other hand, the findings of this study show a positive significant effect of infrastructure on the EE development in Molise region of Italy. However, there is a need of improvement physical infrastructure of the region.

Recommendation 6

The results of the study in hand shows that government policies in terms of EE development in the context of KPK, Pakistan is not very much supportive, however, there is positive significant effect of government policies on EE development in the context of Molise region of Italy. In both contexts, policymakers are encouraged to consider the systems approach as an instrumental strategy in fostering entrepreneurship. This entails a departure from singular interventions in favor of a comprehensive policy framework that acknowledges the complex dynamics inherent in entrepreneurial ecosystems. Specific policy measures aimed at fortifying ecosystems may include targeted funding mechanisms, streamlined regulatory processes, educational reforms, and the facilitation of collaborative networks. By adopting a systemic perspective, policymakers can cultivate an environment wherein entrepreneurial behavior is not merely promoted at the individual enterprise level but is embedded within the fabric of the broader socio-economic landscape.

Recommendation 7

The findings of this research study show the positive significant effect of social media on EE development in contexts of Pakistan and Italy. SMEDA in Pakistan and Sviluppo Italia Molise in Italy have been instrumental in supporting entrepreneurs in their respective regions. Consistent with the objectives of SMEDA and Sviluppo Italia Molise, and based on the research findings, it is recommended that SMEDA in Pakistan and Sviluppo Italia Molise in Italy strategically incorporate social media as a catalyst for EE development. Both organizations should formulate and implement policies that encourage and guide EE stakeholders in the effective utilization of social media platforms. Such policies may include leveraging digital channels for promotional activities, fostering stakeholder engagements, and stimulating innovation within the entrepreneurial ecosystem.

6.5 Research limitations and avenues for future research

Like all empirical studies, the current research also has some limitations that lead to certain questions about its validity and reliability. The main purpose of the discussion on these limitations is to suggest avenues for future research. The first limitation is the use of a key informant (i.e. owner/manager of SME) for data collection which is common in all questionnaire surveys. Therefore, we can trust the reliability of collected data only to the extent of the owners/managers of SMEs' responses. Consequently, future research is recommended to use a multiple key informants' approach, such as all major EE stakeholders. This would lead to a complete understanding of the phenomena in hand.

Second, the findings of this research are specific to the Pakistani and Italian contexts in developing and developed countries respectively. The results of the current study can arguably be generalized to these contexts. However, in order to make the results more generalizable for developing and developed economies, future research is required to be carried out in other developing and developed contexts simultaneously.

Third, it is the fact that the current study uses multivariate techniques in the form of SEM to examine the effect of EE attributes on EE development. In comparison to other multivariate analysis techniques SEM requires a large sample. Although sample size of more than 100 is considered an adequate sample Hair et al., (2018), it is also subject to other requirements, for example: number of variables and model complexity. Furthermore, since this current research also contains large number of variables, therefore, a large enough sample is required. Although, the sample size of the current research exceeds 100 (309 and 167 in Pakistan and Italy contexts respectively) which is considered an adequate sample size, the number of variables used in this research study is large that may affect the power of the statistical test used in the study in hand. Therefore, replicating the model proposed in this research with a larger sample size may provide insightful information about the relationship between different variables used in the model.

Fourth, the research in hand measured all the constructs used in this study from questionnaire surveys which are based on the owners/managers' perception, as opposed to objective indicators. Although, using absolute values of the indicators of these constructs (e.g. for the EE construct, number of new firms' formation, number of large firms in a region, number of meetings of stakeholders per year, number of entrepreneurs using social media for business purpose, etc.) may help to achieve more accurate and meaningful results. However, access to such data is difficult in general and SMEs in developing context like Pakistan in particular. Furthermore, owners/managers may not have particular information or may be unwilling to share such information.

Fifth, the present research study aimed to identify the primary drivers exerting influence on entrepreneurial ecosystem (EE) development within the specific contexts of Pakistan and Italy. Notwithstanding, it is noteworthy to acknowledge a limitation in the study design, as it did not undertake an examination of the differential impact of each identified driver across various phases of EE development. This oversight signifies a potential gap in the comprehensiveness of the study's exploration of the complex dynamics governing the evolution of entrepreneurial ecosystems in the specified regions. It is recommended to explore the effect of individual EE attribute in each EE development phase.

Sixth, the cross-sectional data used in this research may limit the ability of the researcher to truly identify the causal relationships between different constructs. As noted by Kenny (1979), a carefully designed cross sectional study with causal relationships is commonly accepted. Additionally, a cross sectional approach allows the researcher to collect data from large numbers of firms at a very low cost.

Notwithstanding the aforementioned advantages, it is imperative to underscore that future investigations ought to undertake a longitudinal framework to assess the associations between exogenous and endogenous variables encompassed within this research.

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Appendix A: Questionnaire Survey - Pakistan

The survey is composed of 02 parts.

- Part 1: Demographic information of the owner / manager
- Part 2: Statements / items regarding the variables

Part 1 Owner / Manager Demographic Information

Please tick the appropriate option

1. Gender

☐ Male	☐ Female

2. Age

☐ Less than 25 yrs.	☐ 26 to 35 yrs.	☐ 36 to 45 yrs.	☐ 46 to 55 yrs.	☐ More than 55 yrs.

3. Level of education

☐ No formal education	☐ School level	☐ College Level	☐ Degree Level
☐ Postgraduate studies			

4. What is your role in this SME?

☐ Owner/partner	☐ Manager	☐ Other Please specify:……………..

Part 2 This section comprises of independent and dependent variables. You are requested to kindly use the following scale to record your response:

1	**2**	3	**4**	**5**
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Supportive and Risk-taking Culture (SRC)

SRC 1	In my region, majority of entrepreneurs are supported by their families in doing their businesses	1	2	3	4	5
SRC 2	In my region, failures are regarded as learning experience	1	2	3	4	5
SRC 3	In my region, people are being respected and supported in the society as entrepreneurs	1	2	3	4	5
SRC 4	In my region, people prefer to take risk of changing the pattern of doing business	1	2	3	4	5
SRC 5	The people in my region are willing to take risks by investing in the new ventures	1	2	3	4	5
SRC 6	In my region, other stakeholders such as investors, mentors support me in my risk-taking activities	1	2	3	4	5

History of Entrepreneurship (HE)

HE 1	I encourage infant entrepreneurs by telling them success stories of local entrepreneurs	1	2	3	4	5
HE 2	My friends share success stories of successful entrepreneurs with me	1	2	3	4	5
HE 3	People in the region, oftenly give an example of entrepreneurs as successful individuals	1	2	3	4	5

Worker Talent (WT)

WT 1	In my region, the educated people (minimum bachelor degree) are easily available	1	2	3	4	5
WT 2	In my region, it is easy to find skilled people required for my business	1	2	3	4	5
WT 3	In my region, the ratio of brain drainage is comparatively high	1	2	3	4	5
WT 4	In my region, the cost of skilled labor is low as compared to other adjacent regions	1	2	3	4	5

Finance / Investment Capital (FIC)

FIC 1	People in the region started their business on credit	1	2	3	4	5

FIC 2	In my region, it is easy to access and get financial aids for my business from banks whenever needed	1	2	3	4	5
FIC 3	In my region, it is easy to access and get financial aids for my business from financial institutions whenever needed	1	2	3	4	5
FIC 4	Financing for entrepreneurship is available in my local community	1	2	3	4	5
FIC 5	In my region, it is easy to borrow money for my business from my friends, family member or other relatives	1	2	3	4	5

Networking (N)

N 1	In my region, I have collaboration with experts and successful entrepreneurs	1	2	3	4	5
N 2	In my region, I have collaboration with professional and support services organizations / institutions (lawyers, consultants, accountants, suppliers)	1	2	3	4	5
N 3	In my region, universities have strong collaboration with business organizations	1	2	3	4	5
N 4	In my region, I access the resources via my personal / professional contacts	1	2	3	4	5
N 5	In my region, business events help in developing social bonds with other entrepreneurs	1	2	3	4	5

Mentors and Role Model (MRM)

MRM 1	My business start-up decisions are influenced by others such as mentors	1	2	3	4	5
MRM 2	I have a mentor who guides me in my business-related matters	1	2	3	4	5
MRM 3	I get support and guidance from other successful entrepreneurs in the region	1	2	3	4	5
MRM 4	I guide infant entrepreneurs in the region	1	2	3	4	5

Policy and Governance (PG)

PG 1	In my region, the government introduces financing schemes for entrepreneurs	1	2	3	4	5

PG 2	In my region, the government's policies regarding entrepreneurship are clear and understandable	1	2	3	4	5
PG 3	In my region, the government policies in terms of entrepreneurship are consistent	1	2	3	4	5
PG 4	In my region, it is time consuming in terms of following government procedure to start a business	1	2	3	4	5
PG 5	In my region, the government rules and regulations discourage the entrepreneurial activity	1	2	3	4	5

University (U)

U 1	In my region, universities offer training courses for entrepreneurs	1	2	3	4	5
U 2	In my region, universities' professors provide me consultancy in my business-related matters	1	2	3	4	5
U 3	In my region, universities facilitate the dissemination and development of entrepreneurial knowledge and expertise to the region	1	2	3	4	5
U 4	In my region, universities play positive role in creating and growing the entrepreneurial activity	1	2	3	4	5
U 5	In my region, universities provide human capital to the region	1	2	3	4	5
U 6	In my region, universities' technology transfer offices provide me the facility to commercialize my invention	1	2	3	4	5

Support Services (SS)

SS 1	In my region, there are organizations / programs that connects entrepreneurs with mentors by arranging different workshops	1	2	3	4	5
SS 2	In my region, there are many entrepreneur-friendly organizations such as SMEDA	1	2	3	4	5
SS 3	In my region, local organizations, such as incubators and small Business Development Centres, are active in supporting local entrepreneurs	1	2	3	4	5
SS 4	In my region, it is easy to approach professional services (e.g business consultants / Advisors, lawyers, accountants)	1	2	3	4	5

Physical Infrastructure (PI)

PI 1	**In my region, cantonments / societies hinder the entrepreneurial activity**	**1**	**2**	**3**	**4**	**5**
PI 2	**In my region, availability of electricity and gas facilities are not satisfactory**	**1**	**2**	**3**	**4**	**5**
PI 3	**In my region, infrastructure is attractive element for entrepreneurs to do their businesses**	**1**	**2**	**3**	**4**	**5**
PI 4	**In my region, internet facility is available and easily accessible in the region**	**1**	**2**	**3**	**4**	**5**
PI 5	**In my region, mobile network coverage is easily available**	**1**	**2**	**3**	**4**	**5**

Market Accessibility (MA)

MA 1	**My region's local networks could help me to distribute my products across new variety of markets in the country**	**1**	**2**	**3**	**4**	**5**
MA 2	**My region provides opportunities for connecting my business with global markets**	**1**	**2**	**3**	**4**	**5**
MA 3	**In my region, the information regarding the new markets for my products / services is easily accessible**	**1**	**2**	**3**	**4**	**5**

Social Media (SM)

SM 1	**In my region, social media is useful to share the success stories of the firm**	**1**	**2**	**3**	**4**	**5**
SM 2	**In my region, social media is useful source of advertisement for your business**	**1**	**2**	**3**	**4**	**5**
SM 3	**In my region, social media facilitates communication and collaboration between the firm and its stakeholders**	**1**	**2**	**3**	**4**	**5**
SM 4	**In my region, social media is useful in attracting suitable applicants for vacant positions**	**1**	**2**	**3**	**4**	**5**
SM 5	**In my region, social media has positive impact on the generation of revenues of your business**	**1**	**2**	**3**	**4**	**5**

Entrepreneurial Ecosystem Development (DEE)

DEE1	**In my region, there are significant number of large corporations**	**1**	**2**	**3**	**4**	**5**

DEE 2	**In my region, the number of new firms are increasing with passage of time**	**1**	**2**	**3**	**4**	**5**
DEE 3	**In my region, organizations / institutions / firms are well connected with each other**	**1**	**2**	**3**	**4**	**5**
DEE 4	**The culture of the region is entrepreneurship oriented**	**1**	**2**	**3**	**4**	**5**
DEE 5	**In my region, knowledge is freely shared among the actors of the ecosystem**	**1**	**2**	**3**	**4**	**5**
DEE 6	**In my region, the role of government in facilitating entrepreneurship is positive**	**1**	**2**	**3**	**4**	**5**
DEE 7	**In my region, majority of businessmen use social media for business related operations**	**1**	**2**	**2**	**4**	**5**
DEE 8	**In my region, local, national and international markets for my products / services are easily accessible for my products / services are easily accessible**	**1**	**2**	**3**	**4**	**5**

Appendix B: Questionnaire Survey - Italy

The survey is composed of 02 parts.

- Part 1: Demographic information of the owner / manager
- Part 2: Statements / items regarding the variables

Part 1 Owner / Manager Demographic Information

Please tick the appropriate option

5. Gender

☐ Male	☐ Female

6. Age

☐ Less than 25 yrs.	☐ 26 to 35 yrs.	☐ 36 to 45 yrs.	☐ 46 to 55 yrs.	☐ More than 55 yrs.

7. Level of education

☐ No formal education	☐ School level	☐ College Level	☐ Degree Level
☐ Postgraduate studies			

8. What is your role in this SME?

☐ Owner/partner	☐ Manager	☐ Other Please specify:……………..

Part 2 This section comprises of independent and dependent variables. You are requested to kindly use the following scale to record your response:

1	**2**	3	**4**	**5**
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Supportive and Risk-taking Culture (SRC)

SRC 1	In my region, majority of entrepreneurs are supported by their families in doing their businesses	1	2	3	4	5
SRC 2	In my region, failures are regarded as learning experience	1	2	3	4	5
SRC 3	In my region, people are being respected and supported in the society as entrepreneurs	1	2	3	4	5
SRC 4	In my region, people prefer to take risk of changing the pattern of doing business	1	2	3	4	5
SRC 5	The people in my region are willing to take risks by investing in the new ventures	1	2	3	4	5
SRC 6	In my region, other stakeholders such as investors, mentors support me in my risk-taking activities	1	2	3	4	5

History of Entrepreneurship (HE)

HE 1	I encourage infant entrepreneurs by telling them success stories of local entrepreneurs	1	2	3	4	5
HE 2	My friends share success stories of successful entrepreneurs with me	1	2	3	4	5
HE 3	People in the region, oftenly give an example of entrepreneurs as successful individuals	1	2	3	4	5

Worker Talent (WT)

WT 1	In my region, the educated people (minimum bachelor degree) are easily available	1	2	3	4	5
WT 2	In my region, it is easy to find skilled people required for my business	1	2	3	4	5
WT 3	In my region, the ratio of brain drainage is comparatively high	1	2	3	4	5
WT 4	In my region, the cost of skilled labor is low as compared to other adjacent regions	1	2	3	4	5

Finance / Investment Capital (FIC)

FIC 1	People in the region started their business on credit	1	2	3	4	5
FIC 2	In my region, it is easy to access and get financial aids for my business from banks whenever needed	1	2	3	4	5
FIC 3	In my region, it is easy to access and get financial aids for my business from financial institutions whenever needed	1	2	3	4	5
FIC 4	Financing for entrepreneurship is available in my local community	1	2	3	4	5
FIC 5	In my region, it is easy to borrow money for my business from my friends, family member or other relatives	1	2	3	4	5

Networking (N)

N 1	In my region, I have collaboration with experts and successful entrepreneurs	1	2	3	4	5
N 2	In my region, I have collaboration with professional and support services organizations / institutions (lawyers, consultants, accountants, suppliers)	1	2	3	4	5
N 3	In my region, universities have strong collaboration with business organizations	1	2	3	4	5
N 4	In my region, I access the resources via my personal / professional contacts	1	2	3	4	5
N 5	In my region, business events help in developing social bonds with other entrepreneurs	1	2	3	4	5

Mentors and Role Model (MRM)

MRM 1	My business start-up decisions are influenced by others such as mentors	1	2	3	4	5
MRM 2	I have a mentor who guides me in my business-related matters	1	2	3	4	5
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MRM 4	I guide infant entrepreneurs in the region	1	2	3	4	5

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PG 1	In my region, the government introduces financing schemes for entrepreneurs	1	2	3	4	5
PG 2	In my region, the government's policies regarding entrepreneurship are clear and understandable	1	2	3	4	5
PG 3	In my region, the government policies in terms of entrepreneurship are consistent	1	2	3	4	5
PG 4	In my region, it is time consuming in terms of following government procedure to start a business	1	2	3	4	5
PG 5	In my region, the government rules and regulations discourage the entrepreneurial activity	1	2	3	4	5

University (U)

U 1	In my region, universities offer training courses for entrepreneurs	1	2	3	4	5
U 2	In my region, universities' professors provide me consultancy in my business-related matters	1	2	3	4	5
U 3	In my region, universities facilitate the dissemination and development of entrepreneurial knowledge and expertise to the region	1	2	3	4	5
U 4	In my region, universities play positive role in creating and growing the entrepreneurial activity	1	2	3	4	5
U 5	In my region, universities provide human capital to the region	1	2	3	4	5
U 6	In my region, universities' technology transfer offices provide me the facility to commercialize my invention	1	2	3	4	5

Support Services (SS)

SS 1	In my region, there are organizations / programs that connects entrepreneurs with mentors by arranging different workshops	1	2	3	4	5
SS 2	In my region, there are many entrepreneur-friendly organizations such as Sviluppo Italia Molise	1	2	3	4	5

SS 3	In my region, local organizations, such as incubators and small Business Development Centres, are active in supporting local entrepreneurs	1	2	3	4	5
SS 4	In my region, it is easy to approach professional services (e.g business consultants / Advisors, lawyers, accountants)	1	2	3	4	5

Physical Infrastructure (PI)

PI 1	In my region, the transportation and telecommunication system are weak as compare to other regions of the country	1	2	3	4	5
PI 2	In my region, internet facility is easily available and accessible	1	2	3	4	5
PI 3	In my region, businesses are shifting to other regions of the country due to poor infrastructure such as telecommunication and transportation technologies	1	2	3	4	5

Market Accessibility (MA)

MA 1	My region's local networks could help me to distribute my products across new variety of markets in the country	1	2	3	4	5
MA 2	My region provides opportunities for connecting my business with global markets	1	2	3	4	5
MA 3	In my region, the information regarding the new markets for my products / services is easily accessible	1	2	3	4	5

Social Media (SM)

SM 1	In my region, social media is useful to share the success stories of the firm	1	2	3	4	5
SM 2	In my region, social media is useful source of advertisement for your business	1	2	3	4	5
SM 3	In my region, social media facilitates communication and collaboration between the firm and its stakeholders	1	2	3	4	5
SM 4	In my region, social media is useful in attracting suitable applicants for vacant positions	1	2	3	4	5
SM 5	In my region, social media has positive impact on the generation of revenues of your business	1	2	3	4	5

Entrepreneurial Ecosystem Development (DEE)

DEE 1	In my region, there are significant number of large corporations	1	2	3	4	5
DEE 2	In my region, the number of new firms are increasing with passage of time	1	2	3	4	5
DEE 3	In my region, organizations / institutions / firms are well connected with each other	1	2	3	4	5
DEE 4	The culture of the region is entrepreneurship oriented	1	2	3	4	5
DEE 5	In my region, knowledge is freely shared among the actors of the ecosystem	1	2	3	4	5
DEE 6	In my region, the role of government in facilitating entrepreneurship is positive	1	2	3	4	5
DEE 7	In my region, majority of businessmen use social media for business related operations	1	2	2	4	5
DEE 8	In my region, local, national and international markets for my products / services are easily accessible for my products / services are easily accessible	1	2	3	4	5

Appendix C

List of respondents (interviewee) - Pakistan

S. No	Name	Category	Date
1	Mr. Haji Iftekhar	President, Abbottabad Chamber of Commerce	July 08, 2021
2	Mr. Muhammad Kamran	Academics	July 08, 2021
3	Mr. Mian Shakeel Ahmad	Academics / Technology Transfer Office	July 14, 2021
4	Mr. Shanif Qaiser	Entrepreneur	August 06, 2021
5	Mr. Osama	Entrepreneur	August 06, 2021
6	Mr. Touseef Ijaz	Entrepreneur / Politician	August 13, 2021
7	Mr. Sohail Jan	Entrepreneurship Support Organization	August 19, 2021
8	Mr. Shoukat Ali	Entrepreneur	August 23, 2021
9	Dr. Abdul Latif	Academics	September 03, 2021

Appendix D

List of respondents (interviewees) - Italy

S. No	Name	Category	Date
1	Rosa Maria Fanelli	Academics	December 08, 2021
2	Francesca Di Virgilio	Academics	December 14, 2021
3	Renato D'Alessandro	Incubator / accelerator	December 10, 2021
4	Gabriele Ianiro	Incubator / accelerator	November 26, 2021
5	Giuseppe Centillo	Technology transfer office	December 10, 2021
6	Antonella Fiorentino	Technology transfer office	December 9, 2021
7	Roberto Padulo	Entrepreneur	December 20, 2021
8	Nicola Diciero	Banking manager	December 9, 2021

Appendix E

Interview Protocol for Entrepreneurs

For introduction, I am Muhammad Fayaz Khan, Ph.D. Scholar at the University of Molise, Italy. My Ph.D. research project title is "Mapping Entrepreneurial Ecosystem: Identification of Major Drivers in Developing and Developed Countries". I intend to have a session (in person, telephonic, online) with you for preliminary data collection. The interview will take 60 to 80 minutes. I do not anticipate that there are any risks associated with your participation, however you have the right to stop the interview or withdraw from the research at any time.

It is for your kind information that:

- The interview will be recorded.
- The transcript of the interview will be analyzed by Mr. Muhammad Fayaz Khan as research investigator.
- Access to the interview transcript will be limited to Mr. Muhammad Fayaz Khan and academic colleagues and researchers with whom he might collaborate as part of the research process.
- Any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymized so that you cannot be identified, and care will be taken to ensure that other information in the interview that could identify yourself is not revealed.

Kind regards,

Muhammad Fayaz Khan
Ph.D. Scholar
Public Resource Management and Innovation
University of Molise (Unimol), Italy
Contact:
Email: m.fayaz@studenti.unimol.it
Mobile: +393497643661
WhatsApp: +923009344053

1. Tell us something about yourself regarding your;
   - Education
   - Past experiences
2. Why did you choose entrepreneurship?
3. What are the specific reasons to start a business in this industry?
4. Who helped you out in starting your business?
5. What was the first thing that you did after you had the idea of the business? Can you walk us through the process?
6. What challenges did you face and how did you overcome them?
7. To what extent did the culture of the region affect the foundation or operations of your business?
8. Which of these categories describe the culture of your region? Innovative, risk taking, supportive?
9. To what extent did you get support from business consultants, legal firms, accountants or other supporting organizations / individuals during the establishment and operations of your business?
10. We know that when starting a business, it can be hard to find the right people. Can you walk us through how you went through this process?
11. How difficult was finding financial support? Who did you ask?
12. Can you describe your experience of interaction with the government or government policies regarding your business?
13. To what extent did the infrastructure (i.e. roads, utilities, and internet) affect the foundation or operation of your business?
14. To what extent did the universities in the region affect operations of your business?
15. What do you think how social media facilitates / hinders the development of EE in your region?
16. Who would you say are big actors in the entrepreneurial space in your region?
17. How these big actors interact with each other in your region?
18. If I was a prospective entrepreneur looking for help starting a business, where/who would you direct me to?
19. What you recommend for the development of entrepreneurial activity in your region?
20. Is there anything that you wanted to talk about, but we didn’t bring up?

Appendix F

Interview Protocol for Stakeholders

For introduction, I am Muhammad Fayaz Khan, Ph.D. Scholar at the University of Molise, Italy. My Ph.D. research project title is "Mapping Entrepreneurial Ecosystem: Identification of Major Drivers in Developing and Developed Countries". I intend to have a session (in person, telephonic, online) with you for preliminary data collection. The interview will take 60 to 80 minutes. I do not anticipate that there are any risks associated with your participation, however you have the right to stop the interview or withdraw from the research at any time.

It is for your kind information that:

- The interview will be recorded.
- The transcript of the interview will be analysed by Mr. Muhammad Fayaz Khan as research investigator.
- Access to the interview transcript will be limited to Mr. Muhammad Fayaz Khan and academic colleagues and researchers with whom he might collaborate as part of the research process.
- Any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymized so that you cannot be identified, and care will be taken to ensure that other information in the interview that could identify yourself is not revealed.

Kind regards,

Muhammad Fayaz Khan
Ph.D. Scholar
Public Resource Management and Innovation
University of Molise (Unimol), Italy
Contact:
Email: m.fayaz@studenti.unimol.it
Mobile: +393497643661
WhatsApp: +923009344053

1. Tell us something about yourself regarding your;

   - Education
   - Past experiences

2. What is an Entrepreneurial Ecosystem (EE) to you?

3. What do you think are the different elements /factors/ pillars / attributes of EE in your region?

4. What to do you think about the universities ‘contribution in the development of EE in your region?

5. What do you think about the role of physical infrastructure in the development of EE in your region?

6. What do you think how culture of your region contributes in the development of EE?

7. What do you think how government (local, federal) policies and governance contribute (facilitates / hinders) in the development of EE?

8. What do you think about the role of successful entrepreneurs as role models and mentors in the development of EE?

9. What do you think about the role of skilled workers in your region in the development of EE?

10. Describe the role of supporting organizations (such as business consultants, training institutes for entrepreneurs, legal firms etc.) in the development of EE in your region.

11. What do you think how networking among actors of EE in your region help in the development of EE?

12. What do you think how social media facilitates / hinders the development of EE in your region?

13. In your opinion, how can we develop the EE?

14. Is there anything that you wanted to talk about, but we didn’t bring up?

Thank You!