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An Analysis of a Thriving Entrepreneurial Ecosystem

A Case Study of the Malmö-Lund Region

By

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Abstract

According to Malmö Municipality, every third hour, a new venture is initiated in the region. Malmö and Lund region has been top-rated within innovation and development in one of the most innovative countries in the world. Malmö and Lund region collectively hosts the most R&D personnel in the EU per capita (MalmöLundRegion, 2020). Furthermore, the Greater Copenhagen area makes up for 26% of the GDP in Sweden and Denmark (Örestat, 2020). In the region, the MAX IV and ESS facilities attract research competence from all over the world.

According to Global Startups Ecosystems Index 2021(Startup Blink, 2021) on the global ranking, Sweden has taken second place within the EU for the most innovative country, and sixth place globally. Within Sweden, Malmö has performed exceptionally in terms of receiving venture capital and creating innovative startups, hence has been ranked as the second most innovative region and Lund has earned fourth place. Together, Malmö Lund region (MLR) boasts innovation, together within their proximity they have created a unique playground for groundbreaking innovations and startups. During the course of this thesis, the MLR ecosystem has been analyzed via qualitative methods to understand the intricacies of ecosystem support as well as the role of ecosystem actors in MLR. While the MLR ecosystem is a thriving ecosystem by global standards, some bottlenecks have been identified both for the entrepreneur and for the entrepreneurial support system. On the one hand, the MLR entrepreneurial ecosystem boosts innovation and entrepreneurship and on the other, there is much room to improve.

This thesis examines the loopholes, the bottlenecks, and what helps and what doesn't in entrepreneurial ecosystem (EE) epistemology. Via this study the author hopes to deepen the understanding of one of the world's leading entrepreneurial ecosystems while diving deep into comprehending its intricate details that make this complex ecosystem function. This thesis aims to shed light on Malmö Lund regions prominent entrepreneurial ecosystem's actors and the beneficiaries, the innovative startups.

Keywords : Innovation, Entrepreneurial Ecosystem, Regional Development, Entrepreneurial Need, Ecosystem Actors, Innovative Startups

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I have learnt from all of them, and I hope this thesis can shed light on one of the most humble yet incredibly innovative entrepreneurial ecosystems of the world.

Warmly,
Thathsara D Palliyaguru
May, 2022
Lund Sweden

List of Acronyms

Ai – Artificial Intelligence

EE – Entrepreneurial Ecosystem

MLR – Malmö Lund Region

IPA – Interpretative Phenomenological Analysis

IPO – Initial Public offering

RIS – Regional Innovation Systems

SME – Small to Medium Enterprises

SaaS – Software as a Service

SSO – Startup Support Oraganizations

VC – Venture Capital firms

VCFs – Venture Capital Funds

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1. Introduction

This thesis explores the entrepreneurial ecosystems (EE) of Lund Malmö Region (MLR), based on innovation creation via entrepreneurial activities that give rise Startups. An entrepreneurial ecosystem's main service providers are startup support organizations (SSOs) and the support is received and utilized by entrepreneurs who create innovations that sustains the EE of a region (Isenberg, 2011) The entrepreneurs who creates scalable and profitable ventures known as the Startups, aid in knowledge and business creation via new technologies in innovation clusters thus giving rise to knowledge economies (OECD, 2022) .

The focus of this study, the Entrepreneurial Ecosystem of the Malmö Lund Region is one of the most globally attractive entrepreneurial ecosystems (OECD, 2022; Oresunds Startups, 2022; Region Skåne, 2020). Based on the number of patent applications per 10,000 citizens, Malmö is ranked fourth on Forbes' (2013) list of the most innovative cities in the world. Every day, eight new businesses are formed in Malmö (Malmö Municipality, 2022). In addition, the region is home to a number of worldwide enterprises at the cutting edge of IT, mobile technology, and life sciences. Medicon Valley combines universities, hospitals, and companies in the Oresund Region, and is one of Europe's largest open innovation arenas in the field of life science. Naturally, the entrepreneurial climate in Malmö influences and is influenced by it's EE.

The entrepreneurial support stem from many actors of the entrepreneurial ecosystem including municipalities, incubators, accelerators, universities, research centers and private and public actors who contribute to create value. The innovative environment of the MLR region has attracted and aided in creation of multitude to innovative startups in the region. Study of entrepreneurial ecosystem is of paramount importance as scholars have identified EEs to be necessary complement, or even pre-condition for cluster strategies, innovation systems, knowledge-based economies, and national competitiveness policies (Cavallo, Ghezzi & Balocco, 2019; Isenberg, 2010; Isenberg, 2011).

1.1 Thesis Outline

The outline of this thesis is as follows: Chapter 1 covers the introduction, identifies previous research, the research gap and raises the research questions. Chapter 2 covers theory utilized for the study. Chapter 3 explores Malmö Lund Region which is the case study of this research. Chapter 4 discusses method utilized in this thesis while Chapter 5 and 6 elaborates the data section followed by findings and discussions. Chapter 7 is the concluding chapter of this thesis which includes recommendations and a future research section. Finally in Chapter 8 and 9 references and appendices are presented.

1.2 Research Aim

After the seminal paper by Moore (1993), *Predators and prey: A new ecology of competition* Common usage of the term "ecosystem" in a social science rather than an ecological context became widespread in innovation epistemology (Malecki, 2018; Moore 1993). This concept has highlighted the business ecosystem as a business venture's external environment. Entrepreneurial ecosystems carry many similarities with innovation systems, industrial districts, and clusters. Stam and Spigel (2017) states that entrepreneurs and spin-offs are present in these other frameworks but are not central as they are in entrepreneurial ecosystems. Acs, Stam, Audretsch, and O'Connor (2017) accordingly identify entrepreneurial ecosystems as having developed from literatures in both business strategy and regional development.

As scholars state that "there is no such thing as an innovation system without entrepreneurs" (Hekkert, Suurs, Negro, Kuhlmann, & Smits, 2007, p. 421), the researcher believes that a closer focus on entrepreneurs is needed for MLR region. Only the entrepreneurial regional innovation system and the EE research area explicitly highlight the role of entrepreneurs (Cooke, 2007; Julien, 2007; Malecki; 2018, Ylinenpää, 2009). Consequently, similar to a cluster, an EE also involves as key actors several other entities, such as venture capitalists, universities, large firms, financial firms such as banks, and public organizations such as municipal incubators and accelerators that support new venture creation in a region (Brown & Mason, 2017; Malecki, 2018).

This thesis aims to analyze the EE of MLR and focus on the provisions which are provided to it's need holders, the entrepreneurs. As the preliminary literature suggests that there is a gap in the provisions provided by the entrepreneurial support organizations in the EE of MLR. This study will explore the gap between the entrepreneurs' need and the SSO's offering in the MLR EE.

The author seeks to fill the knowledge gap in entrepreneurial ecosystems in MLR. Interviews will help to gain better understanding of entrepreneurs' and companies' views of operating business in MLR, their knowledge and their usage of the MLR entrepreneurial ecosystem regarding business development. The literature survey and focus groups will assist this study with the innovation policy background and the components of currently available entrepreneurial ecosystem supported by the regional innovation system (RIS).

1.3 Previous Research and Research Gap

Innovation research constitute of large number of studies and theories developed on new innovation creation. This study has been inspired by the paper *Innovation in Malmö after Orsunds Bridge* (Ejermo et al., 2021). Seminal studies and data shows that Malmö and Lund regions are some of the most innovative regions in the world (Nauwelaers, Maguire & Marsan, 2013). Yet according to the Malmö Municipal Incubator - Minc, it is possible that many startups and innovative ventures fail within a few years of establishment (Minc | The Startup House of Malmö, 2022). After conducting literature review the author has found that there is a knowledge gap pertaining to the attributes that create bottlenecks for expansion and development of startups of a region.

According to Fichter and Clausen (2016) smaller companies, such as startups, play a crucial role in accelerating sustainable development, given their disruptive technologies and innovation driven business models. Though startups act as a cornerstone in innovation creation, many studies are conducted focused on large scale companies (Fitcher & Clausen, 2016). This has created a

knowledge gap since the characteristics of startups differ from larger firms regarding both their challenges and opportunities (Schaltegger & Wagner, 2011).

However, there are studies in relation to innovation creation via new ventures and entrepreneurial ecosystems such as *The Entrepreneurship Ecosystem and its supports in Nairobi* by Authors Gustaf Ankarcona and Knut Holm (2016) and *Entrepreneurial ecosystem research: present debates and future directions* by Angelo Cavallo, Antonio Ghezzi and Raffaello Balocco (2019). And *The Case of Malmö Entrepreneurial Ecosystem* by Alvaro Itarte Rydz and Nicole Agnieszka (2021) a study that explores the choice of location of entrepreneurs and the extent of the role of spatial context in entrepreneurship at the city level.

Ankarcona and Holm (2016) focuses on ecosystem actors via systemic analysis for Nairobi region in Kenya, a study that has provided the author with much guidance in relation to analyzing an entrepreneurial ecosystem via the systemic perspective. Ankarcona and Holm states that their study can be further developed by deeper analysis of the actors of the Nairobi EE.

The entrepreneurial ecosystems research paper by Cavallo, Ghezzi and Balocco (2019) presents a critical review on the entrepreneurial ecosystem epistemology and theory, starting from its very definition and antecedents. The scholars combine prior research, building on the main concepts that constitute an entrepreneurial ecosystem, providing this research the theoretical background and starting point to understand theory and investigate models that help develop entrepreneurial ecosystem research.

Regarding innovation development in Malmö, Ejermo et al, (2021) analyzes the effect of the Öresund Bridge, a combined railway and motorway bridge between Swedish Malmö and the Danish capital Copenhagen, on innovation development in the region of Malmö. The scholars apply quantitative analytical methods such as difference-in-difference estimation on individual-level data, and their findings suggest that the Öresund Bridge led to a significant increase in the number of patents per individual in the Malmö region as compared with the two other major regions in Sweden, Gothenburg, and Stockholm.

There are many inspiring studies regarding innovation in Malmö region and many studies developing theoretical paradigms pertaining to entrepreneurial ecosystems (Cavallo, Ghezzi & Balocco, 2019; Gustaf Ankarcona & Knut Holm, 2016; Isenberg, 2010; Malecki, 2018; Schaltegger & Wagner, 2011; Shane, 2003) yet a research gap has been identified in relation to qualitative analysis that pertains to difficulties that innovative startups face in terms of provisions gap between entrepreneurial need and ecosystem support in the MLR entrepreneurial ecosystem. Furthermore, many projects regarding innovation creation, such as *Malmö Innovation Platform Project* by Bernadett Kiss, Kes Mccormick, and Lena Neij (Innovationsplattform Malmö Sydost, 2022) and Malmö Lund Region development plan by Verksamhetsledare - Linda Börjesson Katz (MalmöLundRegion, 2019) addresses efforts taken by the ecosystem actors such as Malmö municipality, region Skåne and Lund Municiplaity, yet do not cater to the knowledge gap that has been identified by the researcher in regards to the bottlenecks that entrepreneurial performers such as startups face in regards to innovation creation. After an extensive research via platforms such as Google Scholar and Lund Univerisity Library web search, the author did not manage to find a study where a qualitative analysis has been conducted pertaining to entrepreneurs and entrepreneurial actors of this complex and sophisticated entrepreneurial ecosystem.

1.4 Research Questions

In order to address the above stated research gap, I raise the following overarching research question.

How has the entrepreneurial need been met by the entrepreneurial support system in the Entrepreneurial Ecosystem of Lund Malmö region.

In order to properly address the main research question by decomposing it, the following sub questions have been formulated

SQ1. What does an innovator require from the EE of MLR?
SQ2. What are the needs that have been met?
SQ3. What are the needs that are the needs that have not been met?

The initial research issue in this thesis is to describe the EE's properties. Because startups are the primary beneficiaries and main stakeholders in the EE, the author has discovered that their perspective on the EE is the most important. The SSOs are the organizations who make the support system of the MLR EE, as service providers they also are main stakeholders in the MLR EE. By interaction, they come into contact with the EEs' domains on a daily basis from the standpoint of the entrepreneur. The SSOs collaborate extensively with entrepreneurs and gain valuable insight into the EE enablers as a result. Because SSOs deal with a variety of startups from all areas and sectors, they are able to provide a fair image of the EE and can compare domains with ease.

The second, third and fourth sub questions allow the author to examine the provisions gap of the MLR EE at a deeper level. Should the data gathered provide that there is a provisions gap in the MLR EE, the guided interviews, focus groups and literature review will arm the author to formulate and examine the gap and reach to plausible analysis, conclusions followed by policy recommendations.

2. Theory

2.1 Regional Innovation Systems

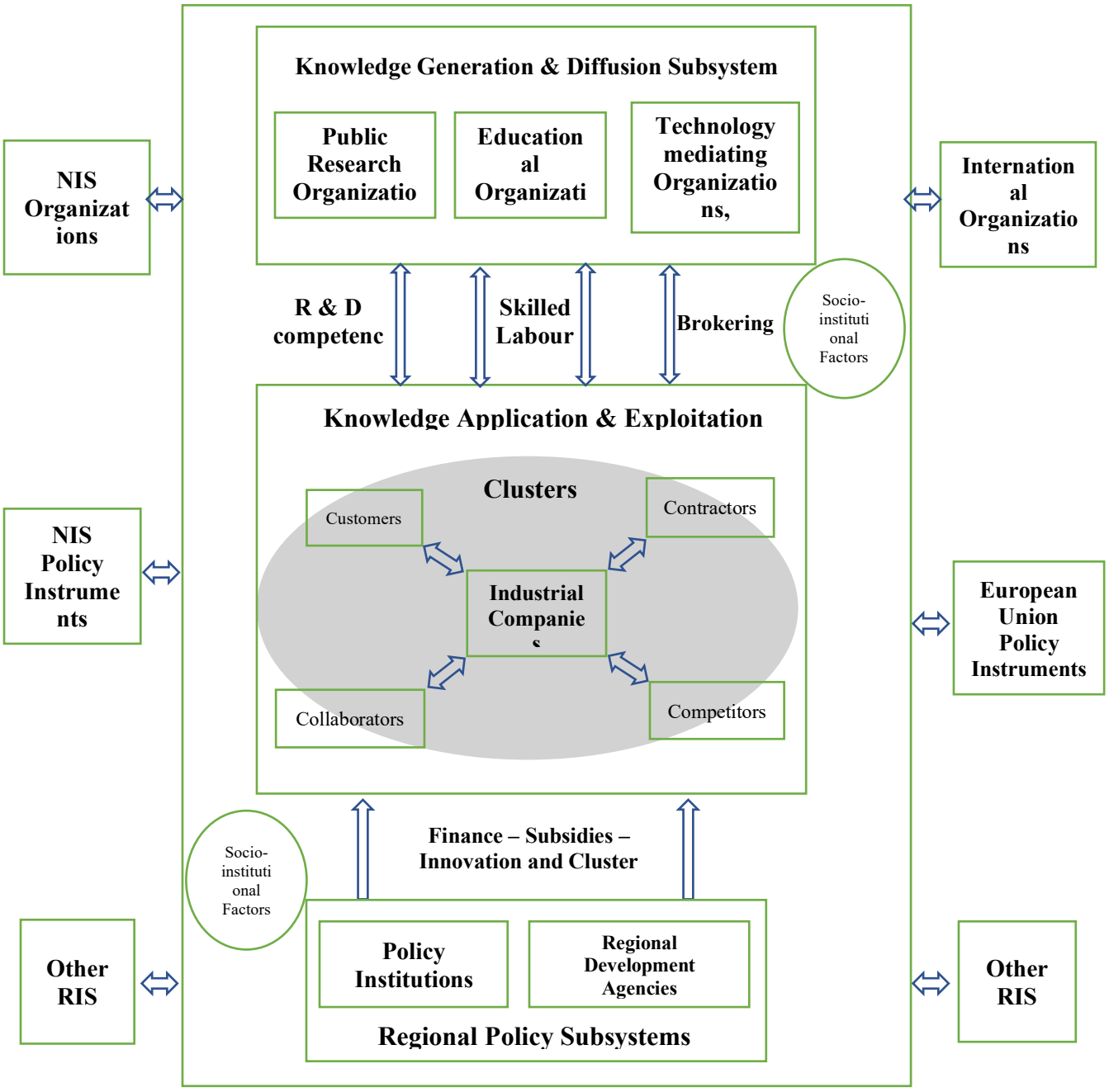
Regional innovation systems (RIS) can be seen as key building blocks and as an engine in the innovative process (Chaminade et al., 2019). An innovation system refers to the collective of institutions and organizations engaged in processes of interactive learning and knowledge creation and diffusion (Lundvall, Vang, Joseph, & Chaminade, 2009). The process of innovation is still in a general sense overseen by the national system of innovation (NIS), but it is localized and embedded in a regional innovation system (Lundvall, Vang, Joseph, & Chaminade, 2009; Karlsson et al., 2008). The regional innovation systems can be understood in terms of relationships and interactions between the various economic actors that make up the innovation system (Cooke, 1997) for example, in the innovative milieu most actors are located in the region in question or exploration but other entities can be located in other regions nationally or internationally and incorporated via various forms of network configurations (Chaminade et al., 2019; Karlsson et al., 2008) Geographical proximity is important as it enables interactive learning and innovation

through the exchange of both tacit and explicit knowledge among individuals and organizations (Boschma, 2005; Chaminade et al., 2019; Karlsson et al., 2008).

When it comes to ecosystems and creating new knowledge the ability of regions to adopt and to adapt new technologies depends on the institutional infrastructure, geography, education, and resources devoted to research and development (R&D) (Karlsson et al, 2008; Maurseth & Verspagen, 1999). According to Chaminade et al., (2019) these and other factors that influence innovation, forms a system of innovation. For example, the network of institutions in the public and the private sector whose activities and interactions initiate, import, modify, and diffuse new technologies (Chaminade et al., 2019; Freeman, 1987). Researchers state that the systems approach is not a theory but a *focusing device* for identifying factors relevant for the innovation process (Edquist, 1997; Chaminade et al., 2019). Systems of innovation can be identified at the national level (Lundvall, 1992) However, regional systems of innovation (Andersson & Karlsson, 2006; Andersson & Karlsson, 2004) exist as self-consistent and self-organized systems within the national ones (Karlsson et al., 2008).

Therefore, as illustrated in the figure 1 below, a RIS can be thus defined as "the wider setting of organizations and institutions affecting and supporting learning and innovation in a region with an explicit focus on competence building and organizational innovations" (Asheim, 2009, p. 28; Chaminade et al., 2019). RIS consist of higher education institutions and research institutions, funding organizations, bridging institutions, and companies among others interact in production and innovation related activities within highly contextualized institutional frameworks incorporating norms, cultures, habit, values, as well as regulations of a region (Andersson & Karlsson, 2006; Andersson & Karlsson, 2004; Karlsson et al, 2008)

Figure 1: Regional Innovation Systems



Source : Authors illustration based on Karlsson et al (2008) and Autio (1998)

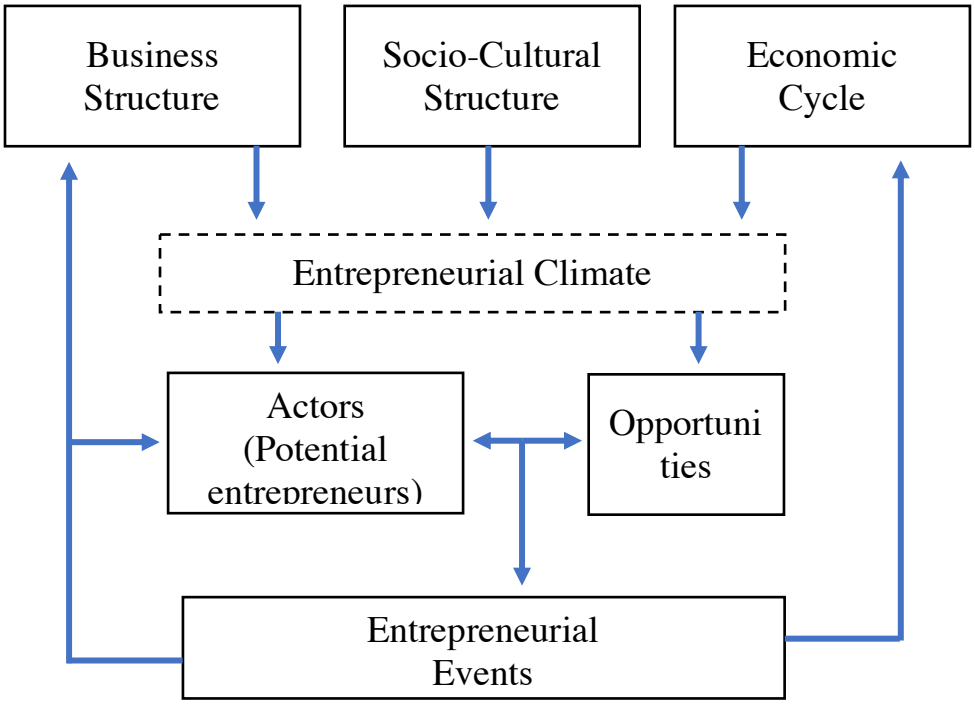
2.2 Entrepreneurial Ecosystem

The elaborative studies that are done on entrepreneurship have mostly been focused on behavioral aspects and characteristics of individuals or firms (Shane, 2003; Shane & Venkataraman, 2003). Nevertheless, several scholars have highlighted the importance of further studying and understanding of entrepreneurship in a broader setting (Autio et al., 2014; Colombelli, Paolucci & Ughetto, 2019; Shaker A. Zahra & Mike Wright, 2011; Spilling, 1996). In order to further study on a holistic approach to entrepreneurship, scholars have recently embraced on studying entrepreneurship from a systematic and interdisciplinary perspective (Ács, Autio & Szerb, 2014; Qian, Acs & Stough, 2013).

As a result, the new concept which offers a holistic and a systematic view of entrepreneurship emerged as "Entrepreneurial Ecosystem" (EE) (Cavallo, Ghezzi & Balocco, 2019). Inspired by the field of biology, the concept of ecosystem was introduced into management literature (Iansiti & Levien, 2004; Moore, 1993). Stam (2015) define entrepreneurial ecosystem as "a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship". The concept is also referred as the interaction of systematic and framework conditions where both biotic and abiotic components are being considered (O'Connor et al., 2018; Spigel, 2017). O'Connor et al, (2018) further elaborates that the systematic conditions such as entrepreneurial networks, finance, leadership, knowledge, talent and support services are considered to be at the core of the entrepreneurial ecosystem (EE). In order to develop and influence on the growth of entrepreneurial ventures, the entrepreneurial ecosystem consists of variety of actors that are interconnected (Spilling, 1996). Hence, it is evident that the entrepreneurs can be considered to be central players information, development and maintenance of a system (Stam, 2015).

There are several definitions for entrepreneurial ecosystem that provides a regional aspect to it by introducing regional development perspective as its ultimate aim (Brown & Mason, 2017) whereas some scholars have showed that the ultimate aim of EE to be the creation of new ventures (Neck et al., 2004; Spilling, 1996; Van de Ven, 1993). The following diagram adopted from Spilling (1996) helps portray that the entrepreneurial climate is affected by opportunities and actors, who are interconnected to the economic cycle, sociocultural structures and business structures.

Figure 2: Model for interaction between environmental factors and entrepreneurial events



Source : Author's illustration based on Spilling (1996)

The ecosystem approach has been considered as a more holistic approach regarding the support for entrepreneurship. Rather than focusing on specific companies and how to intervene accordingly, this approach focuses on developing networks, organizational interactions and building new institutional capabilities. The correlation between the RIS and the EE is prominent, especially given the relationships between institutions are analyzed on a deeper level (Ankarcona & Holm, 2016; Isenberg, 2010). As shown in figure 2 above, the interaction between environmental factors and entrepreneurial climate is built on business structures, socio-cultural structures as well as economic cycles of a region. The entrepreneurial climate effects the potential entrepreneur who benefits by the opportunities and entrepreneurial events of the region. Further, the geographical clustering of economic activity is an important element on the EE. Some definitions of the EE is as follows:

"A set off interconnected entrepreneurial actors, entrepreneurial organisations, institutions and entrepreneurial processes which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment" (Mason, Colin, Brown, 2014).

Where the organisations are represented by firms, banks, business angels and venture capitalist, and the institutions are inclusive of universities, financial firms and public sector institutions and agencies. Lastly, the processes are the business birth-rate, numbers of high growth firms, number of serial entrepreneurs and levels of entrepreneurial ambition (Ankarcona & Holm, 2016).

The EE has been modeled in multi-disciplinary ways, a prominent model regarding the entrepreneurial ecosystem has been developed by Daniel Isenberg (2011). This model has been utilized as a base for other models or referred to in many related works (Ankarcona & Holm, 2016). Isenberg believes that this approach is a basis for the development of paradigms such as innovation systems or knowledge economies in countries and regions (Ankarcona & Holm, 2016; Isenberg, 2010). Isenberg elaborates his thoughts on the EE with significance of context, in the aspect that all ecosystems evolve under distinctive circumstances. Furthermore, the author elaborates that the EE can be industry specific or expand from a single industry or sector to include several. In a geographical sense they are restricted but not in to a particular scale (Ankarcona & Holm, 2016; Isenberg, 2010). They can be confined to an institution or a region or anything in between, and the size of the city is often irrelevant (Ankarcona & Holm, 2016; Isenberg, 2010; Mason & Brown, 2014).

Isenberg elaborates in regards to the EE by stating that every ecosystem evolves under a set of specific conditions and circumstances which are possibly not found anywhere else and they can be industry specific. Moreover, these specific conditions are often limited in a geographical sense i.e – the development of Silicon Valley startup ecosystem (Ankarcona & Holm, 2016; O'Conner, Stam, Susan & Audretsch, 2018) and it is an acknowledged understanding that any economic activity that has tendency to cluster creation results in superior economic performance (Ankarcona & Holm, 2016). Though they are not tied to a specific geographical scale, such as a city or a region (Edquist, 2001) nor is the size of the city relatable (Ankarcona & Holm, 2016; Isenberg, 2010). But for a system to be able to gain foothold the location needs to have place-specific properties, which could be in the vicinity of a university or other research and development facilities.

Essentially, the location has an established and broad base of knowledge, especially when it comes to the availability of scientists and engineers (Ankarcona & Holm, 2016; Mason & Brown, 2014).

Within the EE, Isenberg (2011) has recognised the following six domains and each of these domains contain components interacting both within the domain and with other domains. They are in no specific order, i. **Conducive culture** ii. **Availability of appropriate finance** iii. **Venture friendly markets for** products iv. **Institutional support** v. **Enabling policies and leadership** and lastly vi. **Quality human capital.**

The combinations of components and how they interact can be unique. However, according to Isenberg (2011) in order to get a self-sustaining ecosystem these domains are of paramount importance.

2.2.1 Innovation Ecosystems vs. Entrepreneurial Ecosystems

According to O'Conner et al (2018), innovation ecosystems focus on the organization of a single industry or value chain, while entrepreneurial ecosystems are an inherently focused on geographic perspective (Adner & Kapoor, 2010) Essentially, the EE highlights and focuses on the cultures, institutions, and networks that build up within a region over time rather than the emergence of order within global markets (O'Connor et al., 2018) . According to Moore (1993), an innovation ecosystem refers to a loosely interconnected network of companies and other entities that co-evolve capabilities and competencies around a shared set of skills, technologies, or knowledge, and while working cooperatively and competitively to develop new products, services and technological innovations. (Moore, 1993). However, the EE does not pertain to the strategic management of a firm or group of firms, but the strategic management of a place (Audretsch, 2015; O'Conner et al., 2018).

The entrepreneurial ecosystem approach thus evolves with the **entrepreneurial individual** instead of the company but also emphasizes the role of the social and economic context surrounding the entrepreneurial process (O'Connor et al., 2018). As opposed to innovation systems literature, the focus of entrepreneurial ecosystems research is placed firmly on the entrepreneur and the startup rather than larger, more established firms or slower growing SMEs (Adner & Kapoor, 2010;

Audretsch, 2015; Brown & Mason, 2017). Furthermore, the high-growth startups that make up the basis of entrepreneurial ecosystems are not necessarily included in all cluster and industrial district models (O'Conner et al., 2018; Markusen, 1996) The following chart summarizes theories which are related to entrepreneurial ecosystems based on current literature review of the study. Differences and similarities between entrepreneurial ecosystems and related concepts

Approach	**Industrial district, cluster, innovation system, triple helix**	**Innovation ecosystem**	**Entrepreneurial ecosystem**
Main Focus	Economic and social structures of a **place** that influence overall innovation and firm competitiveness. Relatively insignificant distinction is made between fast growing startups and other types of organizations	Creating customer value through a **chain of interdependent organizations,** Utilizes differential value capture by different players in the innovation ecosystem	**Startups** explicitly at **center of ecosystem**. Seen as distinct from established large firms and slow growth SMEs in terms of conceptual development and policy formation.
Locus of Action	**Private firms** and **state** is primary locus of action in **building and maintaining industrial district/cluster/ innovation system**. Rather small importance is given for individual agency in their creation	**One large firm** as orchestrator of the ecosystem, with many other firms co-innovating or involved in the adoption of innovation	**Entrepreneur** is the main actor in building and sustaining the ecosystem. While state and other sources might support ecosystem through public investment, entrepreneurial support, entrepreneurs retain dominance to develop and lead the ecosystem

Source : Acs et al., (2017), Stam and Spigel (2015) and O'Conner et al., (2018)

2.3 Entrepreneurship

According to Isenberg (2011), *Successful entrepreneurship* stimulates regional development, and influences development of capital markets. Entrepreneurship therefore is popularized as a force for better market regulation and governance (Isenberg, 2011) Entrepreneurship, or new firm formation is known as a fundamental process in the paradigms of economic geography (Stam, 2007). Although empirical research by economic geographers historically has focused on large firms as employers and as agents of globalization, large firms typically start small and attract interest only after they expand to larger scales (Stam, 2007). Stam further elaborated that perhaps due reaction to the decline in new firms in recent decades (Decker, Haltiwanger, Jarmin, & Miranda, 2016), entrepreneurship has not been a prominent research subject within economic geography especially in the United States (Mack & Qian, 2016; Stam, 2007). However, Stam elaborates that the situation in current research has changed, as seen in the recent attention to entrepreneurial ecosystems which are "*dynamic local social, institutional, and cultural processes and actors that encourage and enhance new firm formation and growth"* (Mack & Qian, 2016; Stam, 2007).

2.3.1 Entreprenurial Need

Accroding to Durr et al. (2000) The resources required for successful entrepreneurship can be identified and categorized to the following segments: (1) Innovation/ a business concept (inclusive of R&D) ; (2) physical resources; (3) financing capital (4) core competencies and skills and (5) market and sales channels.

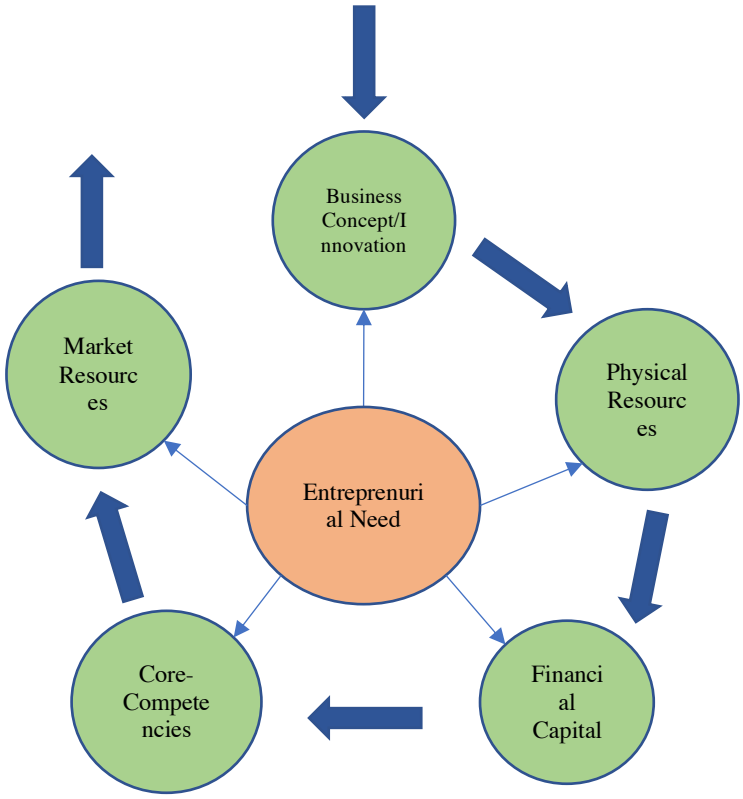
A **business concept** is a unique idea for a product or a service that will satisfy a market need or demand. It is the most important resource for any successful entrepreneur. It must be a well-thought-out, practical, and marketable concept. The business concept can arise from a market need, or innovation that arise from R&D. **Physical resources** are a collection of critical inputs for the operation and growth of a business. They include supplies/raw materials, office and/or manufacturing space, plant and equipment, as well as the technology that is dedicated into the equipment, and money or **financial capital** (Durr et al., 2000).

The entrepreneur and their team must have a set of **core competencies** and abilities in order to successfully operate and build the business and deliver value to its consumers. Management skills such as organizing, planning, supervising, and directing along with technical and operational skills are part of the core competencies of a firm. Durr et al., (2000) elaborates that marketing and sales skills such as the ability to identify and exploit markets, as well as financial skills - e.g., investment, legal skill, and administrative skills such as accounting, human resource development and higher-order skills such as problem-solving and learning as well as further R&D are part of the core competencies (Durr et al., 2000).

Market-related resources are those that are associated with the potential and actual customer base of the firm. Among these is the product or the service. That is, what the business produces and delivers to the customer. Additionally, customers themselves also act as a market-related resource for the entrepreneur. Further importance is placed on set of distribution channels for promoting, merchandising, and selling the product or service which are commonly known as sales channels. Durr et al (2000) further elaborates that the means of transporting, or delivering, the product or service to the customer is a market-related resource as well.

The above-mentioned resources are virtually needed by any and all entrepreneurs in any given region (Durr et al., 2000). Some of these resources entrepreneurs already possess at the inception or the idea phase of a venture. Other resources, the entrepreneur or the innovator must obtain if they hope to be successful along the development of the firm. Durr et al., (2000) elaborates that the latter set of resources are the ones with which the entrepreneurial development programs must be concerned. As these are the resources that all entrepreneurs require to successfully create and sustain their enterprises. Furthermore, this list applies to urban entrepreneurs as well as those operating in other contexts (Durr et al., 2000). The following diagram showcase how the entrepreneurial needs have been connected to the entrepreneur.

Figure 3: Entrepreneurial Need



Source : Author's illustration based on the Durr et al, 2000

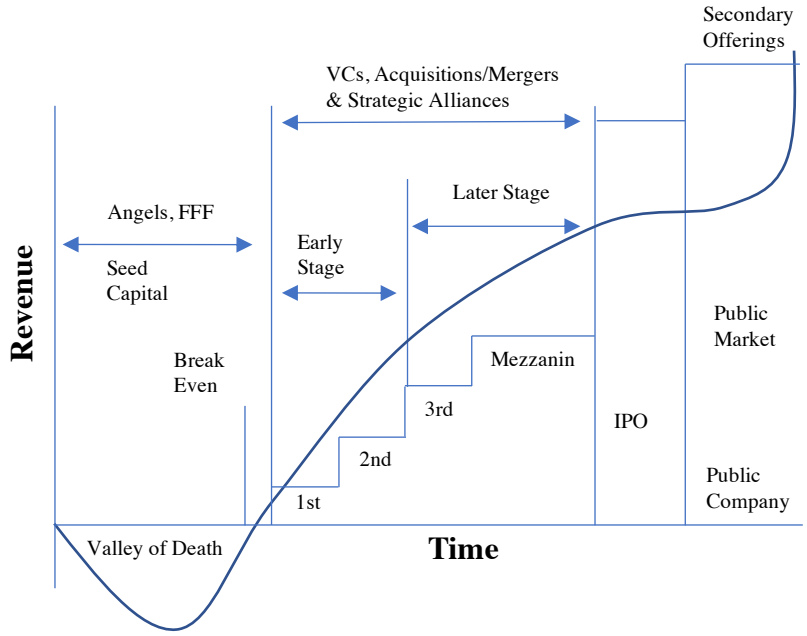
According or O'Conner, Stam, Susan and Audretsch (2018) entrepreneurial ecosystems take a fundamentally geographic perspective. i.e - entrepreneurial ecosystems focus on the cultures, institutions, and networks that build up within a region over time rather than the emergence of order within global markets (O'Conner, Stam, Susan & Audretsch, 2018). Therefore, the entrepreneurial need is strongly location based according to the EE concept. This is further supported by Durr et al's (2000) entrepreneurial need classification as the EE can support entrepreneurs in obtaining the physical resources, financial capital, core competencies such as management and technical skilled personnel and market resources based on a given region (Nambisan & Baron, 2013). Furthermore, Isenberg (2011) elaborates on the importance of the conductive culture, availability of finance, enabling policies and leadership, human capital markets and institutional supports which are well tied to the entrepreneurial need.

To elaborate, a crucial need for an entrepreneur, the financing aspect of a venture can be directly affected by the competence of the EE. i.e amount of risk capital available. As literature indicate, it

is one of the integral needs for an entrepreneur directly influenced by the EE, since availability of funding can define whether ventures, irrespective of the size can

make through the financial struggles that otherwise would not be possible to overcome. Some of these difficulties are assimilated with illustrative names such as “valley of death” (Borrás & Edquist, 2019; Cardullo, 1999; OECD, 2008). The figure below showcases the different stages of financing a startup from its initiation to maturity as a public company.

Figure 4: Financing life cycle of a startup



Source : Cardullo (1999) and OECD (2008)

According to OECD (2008) startups and other SMEs find it difficult to obtain access to various sources of financing. However, each growth phase has different financing requirements as shown in the figure above. These requirements can be met by various sources. For innovative startups, the personal savings of entrepreneurs, family and friends (FFF) are often an important source of finance (OECD, 2008). These new and young firms tend to be highly risky with intangible assets and the prospect of years of negative earnings (Cardullo, 1999; OECD, 2008). Such features can put an entrepreneur in a position where it can be extremely difficult to secure a loan from banks or

other financial institutions. Thus, recognizing the high risk associated with financing entrepreneurial innovations and startups, many governmental organizations create funds to fill possible financing gaps (Borrás & Edquist, 2019; OECD, 2008).

As described by the OECD (2008), during the second phase of survival, as personal funds become depleted, external sources become increasingly importance for the sustenance of the new venture. At this stage, investment is still highly risky due to the failure rates, especially those that potentially require high rates of return. Typically, startups at this stage are not large enough to attract the attention of venture capitalists as well (OECD, 2008). In this instance, business angels who are commonly known as wealthy individuals in the startup financing milieu, fill the gap between personal funds and institutional venture capital funds (VCFs). In addition to providing financing, business angels contribute their networks, expertise, knowledge, and contacts both formally and informally to the business they invest in (OECD, 2008; Thompson and Choi, 2002). During the early phases of survival, it is imperative that the EE provides the startups avenues of financing by availably of risk funding and grants through public and private institutions. During later stages, the attractiveness of the region helps global VCFs to identify and invest in the advancing startups of the region.

3 Malmö Lund Entrepreneurial Ecosystem

3.1 Overview

MLR is an exciting and inspiring region that has a long history of innovation and entrepreneurship. The proximity of these two cities makes it easy for innovators and entrepreneurs to find contacts and resources nearby that can be helpful in realizing their ideas. In addition, strong established universities such as Lund University and Malmö University with entities such as LU Innovation, science parks, incubators such as Minc, SmiLe and Ideon Innovation as well as accelerators such as Nordic Cleantech Accelerator, Beyond, Fast Track Malmö support new venture creation. University researchers can also utilize the Lund University and Malmö University's technology transfer office for help with their business ideas. The cities together have many strengths in the areas of innovation and research, but the industries perhaps that stands out most are IT, SaaS

(Software as a Service), Gaming, Food technology (foodtech), Life Science, Health technology (healthtech), Materials science and Medicine (Oresund Startups. 2022). Although MLR is an ideal place for new entrepreneurs as the cities combine knowledge, capital and other resources, as well development potential for medium-sized companies, there is a lack of resources such as risk funding for startups, lack of senior talent attraction in the region and developed job markets (Nauwelaers, Maguire & Marsan, 2013). However, to overcome these key issues, MLR has created many private and public institutions which aid in entrepreneurship creation and development of innovative startups. Below is a non-exhaustive diagram of various actors of the EE of MLR.

Figure 5: Key Actors of MLR EE

	Inspiration	**Advice**	**Workshops**	**Education**	**Funding**
Student	- Venture Lab - Drivehuest - HubAi - Skåne Startups	- Sten. K Johnson Centre for Entrepreneurship - UNOPS S3i Innovation Center - Future by Lund	- Venture Lab - Sustainable Business hub - Goto 10	- Lund University - Malmö University	- Ideon Innovations - Venture Cup - Leapfrogs
Researcher	- Venture Lab - Drivehuest - HubAi - Skåne Startups	- Sten. K Johnson Centre for Entrepreneurship Venture Lab - Ideon Innovations - LU Innovations	- Venture Lab - Drivehuest - HubAi - Skåne Startups	- Venture Lab - Drivehuest - Skåne Startups	- LU Innovations - Smile Incubator - Medeon
General Public	-Innovation Skåne -Nyföretagar Centrum	-Nyföretagar Centrum - UNOPS S3i Innovation Center - Future by Lund	- Almi -Nyföretagar Centrum -Mindpark -Goto 10	- Almi - Minc - International Citizen's hub -Public Library	-Almi -Fast Track Capital -Medeon -Venture Cup

Source : Author's illustration based on Sten K Johnson Center for Entrepreneurship webpage

3.2 Entrepreneurial Ecosystem Actors

Almi – Almi offers loans and business development to companies with growth potential. This applies to companies that are in the startup phase as well as existing companies. Through the

subsidiary Almi Invest, they invest venture capital in companies in the early stages with great growth potential and a scalable business concept.

Minc – Minc is the startup house of Malmö. Minc guides entrepreneurs to success with their incubator, accelerator, workshop and investment program. They offer business development, a co-working space in a creative and network-based environment. Minc helps with contacts including business angels and investors. It is also the home of Minc Incubator, the award-winning accelerator Fast Track Malmö, and Startup Labs, an open space where anyone with a scalable business idea can work for free for up to six months.

Mindpark - Mindpark is a collection of creative coworking and event spaces located in the southern parts of Sweden. Mindpark is popular in the region as they are home to numerous small and big companies, and inspirational events.

Drivhuset – Drivhuset is located at Malmö University. This institution supports people with new and innovative ideas, entrepreneurs, freelancers, enthusiasts, and people who wants to make change in their entrepreneurial journey. At Drivhuset, entrepreneurs get the knowledge and inspiration to take ideas and organizations forward.

Fast Track Malmö - helps talented teams accelerate their growth and raise their first VC round. Once a year they invest a small amount of money in 10 different startups based in Malmö. Fast Track Malmö accelerator has been voted the best accelerator program in Sweden and is one of the highest quality accelerator programs in Europe. Fast Track Malmö offers a three-month program including €50,000.00 of investment as a convertible note. Fast Track Malmö is a part of Minc, the startup house of Malmö.

Future by Lund - Future by Lund is an innovation platform for development of sustainable and attractive cities. This institution is a meeting place for new and established participants. The key areas of focus for Future by Lund are Moving Things and People, Energy, The Digital Human, Future Living and Spaces, and Human Centric Light. Future by Lund creates different test environments for innovators. Lately, according to the web platform, they focus on “Smart Cities

& Smart Citizens." By working with specialized partners within municipality, the private sector and academia to solve global challenges and create innovative and sustainable solutions. Future by Lund explore possibilities, identify needs, cultivate, inspire and pioneer new qualitative innovations and business models.

Goto 10 – Goto 10 is an open space for internet related knowledge, networking and innovation, run by The Swedish Internet Foundation. It is a known free co-working and event space in Malmö.

Innovation Skåne - Their goal is to contribute to future public services and regional growth – through innovation. They provide innovation management and support for Region Skåne's operations, run growth projects in industries where Skåne has strong capabilities and there is an international growth potential, as well as help entrepreneurs and startups in Skåne with business advisory. Innovation Skåne is fully owned by Region Skåne.

NyföretagarCentrum – Is a network of entrepreneurial help centers. From individual counseling for entrepreneurs who have a finished business idea to work with the Business Plan. NyföretagarCentrum further holds special events, trade fairs, training and e-courses and more for entrepreneurs to receive help in their journey.

Medeon - Medeon Science Park & Incubator provides a creative environment for new and established companies. Their focus is directed at knowledge intensive businesses within life science: pharmaceutical, development, medical technology, biotechnology and health care. The science park and incubator is located in Malmö, right at the center of the Öresund region and in the middle of Medicon Valley. This is the geographical area which hosts most of Scandinavia's life science firms. In 2022 at Medeon there are over 60 businesses and approximately 450 employees. According to the Medeon webplatform, Medeon is owned by the City of Malmö (60%) and the real estate company, Wihlborgs Fastigheter (40%).

Medicon Village - Medicon Village Science Park is a meeting point for researchers, innovators and entrepreneurs focusing on life science. There are about 2,600 people in more than 170 organizations at Medicon Village.

Media Evolution - Media Evolution is a media cluster that brings together and strengthens the efforts in the media industry in Southern Sweden. They are a membership organization that unites business, public sector and representatives from cultural and scientific communities to build mutual understandings and create a ground for new collaborations.

Ideon Innovations – is a business incubator in Lund that has helps startups grow to success since 2000. Startups get support from their experienced business coaches and make connections with nearly 300 companies close at hand so that they can reach an international market. Ideon Innovation further has a strong network of entrepreneurs, investors, developers and people with diverse areas of expertise. The incubator has a six-step program starting from the foundation, complemented by team building, coaching and matchmaking.

Level Malmö – A migrant community focused business incubator that support international entrepreneurs at all stages of business development and networking opportunities.

LU Innovation – a hub of innovation and commercialization at Lund University. LU Innovation help researchers to utilize their research findings. Their goal and mission are to contribute to increased and sustainable growth in Sweden by ensuring knowledge and research from Lund University. LU innovation contains experience from research, industry, and the public sector, as well as a large national and international network. Their services are freely available to researchers and students at all faculties at Lund University, regardless of discipline.

Skåne Startups - Skåne Startups is the home of local startup community initiatives Malmö Startups, Lund Startups, Helsingborg Startups, as well as the Women in Entrepreneurship community and Startup Live, southern Sweden's largest startup event. Skåne Startups enables startup initiatives in southern Sweden that help take the startup ecosystem to the next level by inviting global investors to the local ecosystem.

Sten K. Johnson Centre for Entrepreneurship - Sten K. Johnson Centre for Entrepreneurship, is part of the Lund University School of Economics and Management. They currently teach 15

courses within the field of entrepreneurship spanning all levels and faculties. In addition, the center has a strong research focus within the field off entrepreneurship and focus particular on a number of research topics.

Smile Incubator - They help entrepreneurs and early-stage companies develop and commercialize new ideas in life science; bringing together bright minds to share powerful ideas. Surrounded by best tools and approaches at the entrepreneur's disposal – Smile Incubator aid the founders to take leaps toward creating a business and connecting with the fellow entrepreneurs and resources. The incubator offers business coaching, access to investor and industry networks, access to labs and instrument as well as a community with colleagues, friends and peers.

Venture Cup - Venture Cup is a competition for entrepreneurs. Their purpose is to connect people with ideas with experts and the crowd, to ignite the creation of new businesses and empower the growth of businesses in Sweden. Venture Cup is a nonprofit organization, and open for everyone who wants to test their business ideas. With their financial partners, each year they donate 1,3 million SEK to creative ideas with long-term sustainable growth and verified demand from customers. Venture Cup was founded in 1998 at the initiative of McKinsey & Company in collaboration with Chalmers University, Gothenburg University and Innovationsbron.

Venture Lab – Venture Lab is part of Lund University and help students to realize entrepreneurial ideas. They offer inspirational activities, business development and run Lund University's incubator. They work to spark an interest in entrepreneurship among students and to help students that have ideas to realize them by starting projects or companies. Venture Lab organizes inspirational lectures and events to give students the possibility to meet like-minded people, offer free and confidential idea and business development, and run Lund University's incubator – a place where student run startups develop their ideas.

The Ground - The Ground is a digital expert hub in Malmö. Those who work at The Ground help in mentoring and helping each other and other entrepreneurs in the region. The Ground is an entrepreneurial coworking space and community filled with entrepreneurs who build scalable digital products.

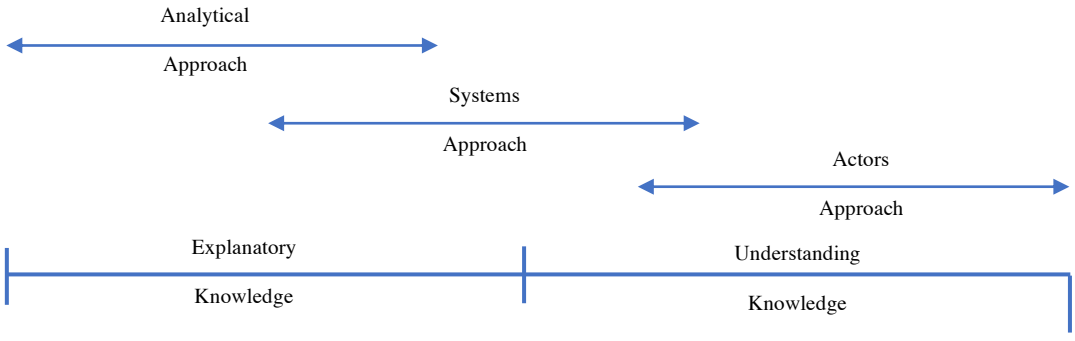
UNOPS S3i Innovation Center – The UNOPS innovation center in Sweden Swedish aims to create an environment that nurtures innovation and foster partnerships leading to it – helping to identify the solutions and technologies needed to tackle the climate crisis and achieve long-term sustainable development. Over the past years, UNOPS S3i have helped companies engage with the SDGs to make contributions to improve sustainable development and create new opportunities for people around the world. There are currently UNOPS S3i innovation centers in Sweden and Japan. The UN project organization UNOPS is headquartered in Copenhagen. The Sustainable Infrastructure Impact Investments (S3I) initiative, which also comprises the Global Innovation Programme, is located in the UNOPS office in Helsinki, Finland.

4 Method

4.1 Research Approach

In any scientific investigation, it is critical to state which method was employed to conduct the research. The approach chosen is determined by the researcher's perspective on the topic and research goal. According to Arbnor and Bjerke (1994), there are basically three general approaches to a business study: analytical approach, systems approach, and actors approach (Arbnor & Bjerke, 1994; Ankarcona & Holm, 2016). The association between these approaches and their knowledge production is seen in Figure X - Research Approach.

Figure 6: Research approach



Source : Author's illustration based on Arbnor & Bjerke (1994) and Ankarcona & Holm (2016)

The analytical approach, which is developed from classical analytical philosophy, is a historical scientific approach, which is still a foremost approach in scientific investigations and research methods. The method is summative, meaning that the whole is greater than the sum of its parts. To analyze the whole picture, the researcher must first research the many components and then combine the distinct images. It's a practical method that's unaffected by personal and subjective experiences (Arbnor & Bjerke, 1994).

Arbnor and Bjerke explains that the systems approach, in contrast to the analytical approach, assumes that reality is organized in such a way that the whole differs from the sum of the parts. When using a systems approach to research, the link between these elements becomes fascinating because it is thought to have an impact on the whole. The parts of a system are explained or understood using the properties of the whole (Arbnor & Bjerke, 1994).

The actors approach, unlike the analytical and systems approaches, does not delve into explanatory linkages. Rather it analyzes the social entireties by looking to the individual actors. This approach emphasizes the meaning of key-actors actions in a social context. The observer is considered a constituent of reality in the actors approach, hence it has an impact on the system it is observing (Arbnor & Bjerke, 1994; Ankarcona & Holm, 2016). This study utilized a combinatory method of systems approache and actors approach as it investigates entrepreneurial ecosystem of MLR at a systems perspective and gather data from the actors of the entrepreneurial ecosystem to analyze the provisions gap in this ecosystem.

In academia, when scholars embark on a research study of the social and individual world, there are two major methodologies to research that they can apply. The two types of research methods are quantitative and qualitative methods (Yin, 2009). The quantitative research approach can be defined as an order of empirical study that examines theories with variables that are measured with numbers and analyzed with statistical measurements in order to get conclusions about underlying phenomena of interest (Creswell, 1994; Gay and Airisian, 2000). The qualitative approach, in contrast to the quantitative approach, is more engaged in naturalistic inquiry, which is more open and examines a specific area of interest. On contrary to quantitative studies which are concerned

with investigating into cause-effect relationships through deductive reasoning and coming up with generalization outcomes, qualitative studies are more suggestive and is concerned more with the process, context, interpretation or understanding through inductive reasoning (Yilmaz, 2013; Axelsson & Nilsson, 2017). Hence, qualitative studies are open for further research (Axelsson & Nilsson, 2013).

For this study, the qualitative research approach has been utilized as the study aims in understanding the entrepreneurial ecosystems of Lund Malmö region and the provisions gap that exsists between entrepreneurial need and the entrepreneurial support system. The research question that has been researched upon is based on a social constructive epistemology hence, qualitative research approach is ideal.

Further, going beyond the systems and actors approach, there are three major research methodological approaches that are categorized upon the research aim or the purpose. They are explanatory approach, exploratory approach and descriptive approach. An exploratory research aims to explore and get a better understanding of the underlying subject of interest whereas an explanatory research aims to identify cause and effect of underlying phenomena. The descriptive research aims to describe or show more light into a phenomenon through a process of data collection. In this study, the researcher used an exploratory research approach with the aim of getting a deep understanding of the contribution entrepreneurial support system of MLR, the entrepreneurial need and identifying the provisions gap in the entrepreneurial ecosystem of MLR.

4.2 Research Logic

There are three main approaches of logical reasoning for conducting research: inductive, deductive and abductive. Deductive reasoning is building a theory and inferencing through testing the hypothesis whereas inductive reasoning is the approach of building a theory through observation and investigation. Abductive reasoning involves in a selective process in understanding how the data support the existing hypothesis or theories and how the data may require for modification in existing understandings (Thornberg, 2012).

Since this study utilizes theories from both entrepreneurial ecosystems and Regional innovation systems (RIS) literature, it is important to collect data from the entrepreneurial support systems in the Lund Malmö region. Cooke (2001) discusses entrepreneurs and venture capital in the context of RIS. However, the author further states that entrepreneurship is loosely linked with the five core concepts he has identified for regional innovation systems, namely regions, innovation, network, learning and interaction (Cooke, 2001). Furthermore as Edquist (2006) states, an innovation system consists of two main components: organizations and institutions. Which is consistent with North's (1990) notion of *players and rulers of the game of entrepreneurial ecosystems*. According to North (1990) institutions and support organizations are an important aspect of the entrepreneurial ecosystems as well as regional innovation systems. Where organizations are formal constructions with the purpose of enhancing and supporting the system established at the beginning. Included in this term are suppliers, universities, venture capital organizations and public innovation policy agencies. The institutions are the rules of the game in a sense, compromised of common habits, rules or laws that regulate the interaction between organizations, as per example, patent laws (Ankarcona & Holm, 2016; Isenberg, 2011).

This thesis utilizes the abductive approach as it has gathered and analyzed data from the reality along with matching with existing theories along the research process. The use of abductive reasoning approach can be further supported through the argument put forward by Starrin and Svensson (1994) stating that an abductive study is more appropriate in a qualitative research where the interest area that is being investigated and analyzed falls in an emerging field of knowledge.

4.3 Research Design

Durrheim (2007) states that a research design is defined as "a strategic framework for action that serves as a bridge between research questions and the execution or implementation of the research". The four research design methods that are being widely used by scholars within applied science are survey, case study, experiment and action research. Höst, Regnell and Runeson (2006) describes surveys to be studies that describe current situation of a phenomenon, case studies to be an action series which thoroughly investigates a process, an experiment research as a process of

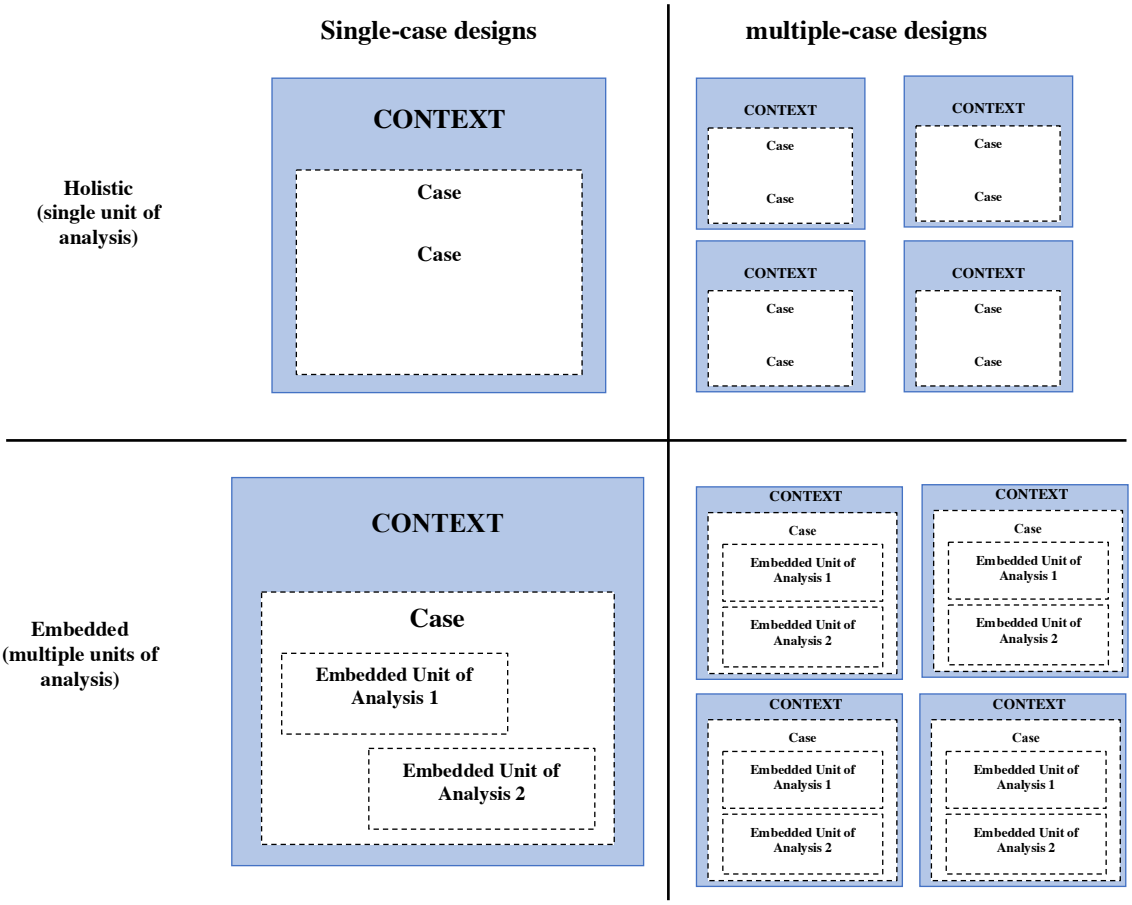
comparing different alternatives and an action research to be an observation and document study of a certain process.

This study is designed as a case study of MLR since case study is an appropriate approach when the focus is on a contemporary phenomenon with some real-life context and it is a perfect strategy when "how" or "why" questions are posed (Yin, 2009). Since the present study is focused on achieving a deep understanding of the current dynamics of the entrepreneurial ecosystem of MLR and how the entrepreneurial need has been met by the support systems of MLR's Entrepreneurial Ecosystem.

4.4 Case Study Design

The case study research strategy is used in many settings to contribute to the knowledge of individual, group, organizational, social, political and related phenomena (Yin Robert, 2009). In designing a case study research Yin (2009) has shown four major types of research designs as portrayed below based on several characteristics.

Figure 7: Basic Case Study Design

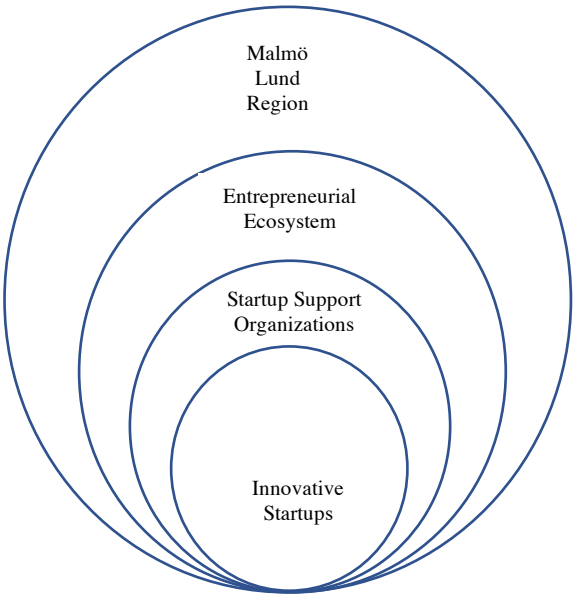


Source: Yin (2009)

The rational for the choice between a single or a multiple case study depends upon the way the research questions are to be addressed. A single case study design is used when the objectivity of the research is to study circumstances and settings of a certain situation whereas a multiple case study design is preferred when there is the need of exploration of findings beyond the uniqueness of one setting and when ample time is available. Depending on the existence of one or several unit's relevance to the analysis of the case, the choice between holistic or embedded approach is decided (Yin, 2009).

The research question of this study relates to the circumstance and settings of environment to the entrepreneurs in MLR and it addresses provisions gap of the entrepreneurial need and the analysis of the support system in MLR's EE. One of the rational presented by Yin (2009) for single case is that it should be used when the underlying critical case is testing a well formulated theory. Hence, the ideal case study approach to the current study is the single case study, as the research will be analysing the entrepreneurial ecosystem of MLR. Furthermore, with the time constraint prevailing to conduct the research, the researcher believes single case study approach is ideal. To serve the purpose of the research question of this study, the ecosystem of the MLR and it's startup support organizations are being studied.

Figure 8: MLR Case Study Design



Source : Author

5 Data

5.1 Qualitative Analysis

A qualitative researcher typically gather data with the utilization of multiple sources such as interviews, observations, focus group and literature, rather than relying on a single data source

(Creswell, 2009). Since the current study is a qualitative case study, the chosen methods of data collection are interviews, focus groups and literature survey. The use of multiple data collection methods also supports the stronger validation to the research (Eisenhardt, 1989). Furthermore, interviewing candidates in order to gather data utilized this study with interpretative phenomenological analysis (IPA), which is concerned with capturing people's accounts and reflections to explore and interpret their unique experience in the given study context (Ritchie et al., 2012). The IPA method heightened with discourse analysis that is aided by the literature review helps this study achieve triangulation in collecting practical data that helps reach concrete conclusions and recommendations.

This study has been developed with the aid of interview data provided by eleven innovators in the Malmö Lund region spanning across eleven sectors. A literature survey has been be done to gather knowledge regarding the innovation ecosystem in the Malmö Lund region and the main actors of it. Further, the study utilized three focus groups of overall nine innovation ecosystem facilitators from leading innovation creation agencies such as incubators, accelerators and other regional innovation agencies.

5.2 Data Collection - Principles for data selection

5.2.1 Interviews

According to (Yin, 2009) interviews are considered as one of the crucial sources of data for a case study research. In interviews, there are three fundamental types; structured, semi-structured and unstructured. Structured questions are verbally administrated questionaries with the guidance or a list of predetermined questions. Semi-structured interviews are interviews where the interviewer uses a guide as a support. However, the questions asked could be rearranged or changed in the course of the interview. Unstructured interviews are conducted with little or no guidance and allows the interviewed object to guide (Creswell, 2018; Yin, 2009). In conducting any form of interviews, recording is proven to be crucial as both what and how the interviewed object express themself is under the study (Bryman, 1994).

In the current study open ended semi-structured interviews have been selected as the ideal source of collection of data because the semi structure interviews do not limit to a strict structure. Rather, it gives a direction to conduct the interviews and it is more flexible to the researcher. Further, it allows to the study to collect data adapted for each participant or institution and allow the exploration of emergent issues (Ritche et al., 2013). To facilitate this method, interview guides have been developed by the author in reference to literature with regards to context of innovation creation entrepreneurship in Malmö Lund region and other general literature that are presented for entrepreneurial ecosystems.

According to Ritchie et al, (2013) following are some of the ethical dilemmas that a researcher has to take into consideration in qualitative data gathering via interviews. For example, particularly intimate and disclosive environments and how to help the participants manage the extent of disclosure. Further, detailed personal accounts raise issues about potential identifiability in reporting. Interviews are known as a common method for emergent of intimate and personal subject matter. Especially in this study the difficulties that the entrepreneurs face can be unique to the candidate based on their demographical nuances or any other personal matter. The researcher should take into consideration that the interviewee should be left feeling "well" after the interview and not to induce any distressing experiences (Ritchie et al, 2013) Further, it is upto the researcher to manage expectations regarding the help that can be offered in the research topic that the researcher is exploring.

According to the Oxford Reference Database (2021), possible bias in the interview method in qualitative research can arise as distortion of response related to the person questioning informants in the research. The interviewer's expectations or opinions may interfere with their objectivity or interviewees may react differently due to their personality or social background. Further, both mistrust and over-rapport can affect outcomes. To overcome these biases, it is important the researcher takes a pragmatic and neutral stance over the topic of discussion and interview processes (Ritchie et al., 2013, pp. 17).

5.2.2 Focus Groups

To understand the perspective of the EE actors of MLR, focus groups containing nine members of the EE of MLR has been utilized for this study. Due to schedule conflicts the entire group could not be allocated to one focus group. Hence, the nine candidates were divided to three separate focus groups based on their availability of time and schedule. The three focus groups were conducted over "zoom" to overcome the physical distances of the candidates. The focus group method was utilized in this study as it is one of the elaborative data collection methods in qualitative research, and it was a useful method to collect perspective of EE actors. The communal discussion method that is only possible via focus groups allow the candidates to reflect on points of discussion and share data that lead to discussion points within the group member. As literature states, focus group research is "a way of collecting qualitative data, which essentially involves engaging a small number of people in an informal group discussion (or discussions), 'focused' around a particular topic or set of issues" (Morgan & Morgan, 1997; Wilkinson, 2006). A better understanding of the group dynamics that affect the perceptions of individuals can be achieved through focus groups.

Possible biases in focus groups that have been taken into consideration are for example, dominant respondent bias where dominant respondents appear frequently in focus group. Such a candidate can influence other respondents. This can be identified where the dominant responder will utilize majority of interview time, vocalizing their knowledge, expertise, energy, attractiveness, and charisma (Oxford Reference Database, 2021). Further, group effect or group bias can have a large impact on the results of focus group. The group effect bias often leads to exaggerated responses or results that do not accurately reflect the true opinions of all participants. To overcome these biases the researcher must allow the interview process to begin with identifying the main aim and defining the key research objectives of the study. Based upon the research objectives, a list of questions has to be prepared as guidance for each focus group discussion session as well as conduct each question in a timely manner with equal discussion time allotted to each candidate.

For the purpose of this study, three entrepreneurial ecosystem focus groups have been used containing overall nine candidates with three candidates per group, from managerial levels of

Startup Support Organizations (SSO) as to understand the offerings of accelerators, incubators and other innovation agents/institutions of the MLR entrepreneurial ecosystem. The focus group method was used as it generated more information, insights and ideas through interactions and discussions among the group. Various ecosystem actors of the SSOs of MLR EE had multitude of information, years of experience and a sound background in relation to unique needs of the MLR EE. As service providers of the EE, the SSO interviewees deliberated on various entrepreneurial needs as well as what is lacking in the ecosystem for the support organizations and innovation actors of MLR. Detailed information regarding the interview guide can be found on appendix A.

Finally, when considering ethical dilemmas in data gathering via focus groups, key instances are risk of other participants not respecting confidentiality of what is said in the group. Ritchie et al (2013) further states that there could be the risk of disagreement within the group leaving some members less comfortable about the research experience. Therefore, it is unto the researcher to maintain a respectful environment and guide the interviews with proper decorum where all participants can express their experiences and knowledge in the research matter without feeling uncertain.

5.2.3 Literature review

Literature review can be considered as a pathway to knowledge in conducting a deep research. It is a widely used form of data collection methods in qualitative research. It is often an iterative process throughout the study as it acts as a source for validity and reliability (Axelsson & Nilsson, 2017) As shown by Bryman (1994), a well performed literature review assists the researcher with the ability to develop existing theories and reduces the risk of overlooking the conclusions that has been already arrived at.

The study will utilize a literature review initially in order to gain general knowledge of the field of interest in order to understand the existing theories put forwarded by different scholars as well as to understand the prevailing research gap for the field of interest. Furthermore, the author will use a selective process in reviewing the literature in order to identify the most relevant literature

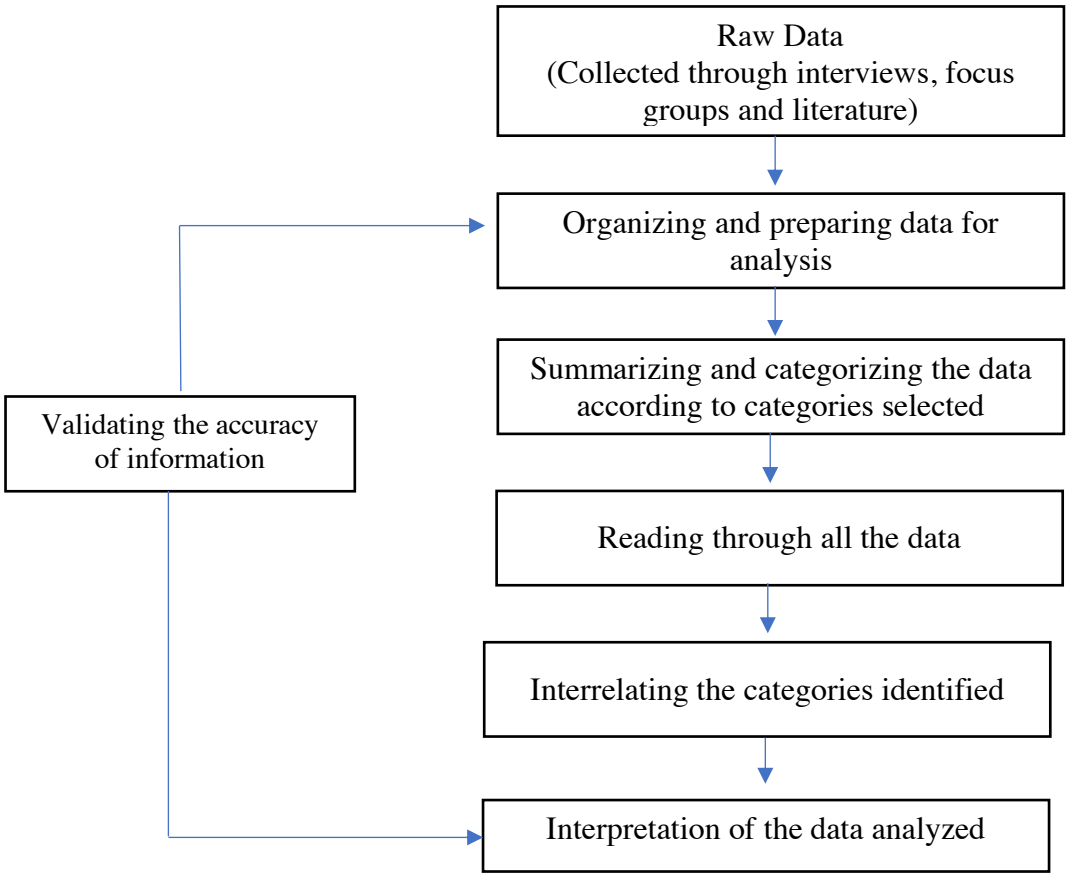
available. With performance of the literature review, a deeper understanding of the researched area can be gained. The literature is aimed to consist of mainly academic articles published by well-known journals and credited non-governmental organizations, books, academic journals and reports presented by renowned institutions. The primary tools which will be used in finding the relevant literature are mainly the Lund University database, LUBsearch and Google Scholar webpage. The approach utilized by the author in finding the most suitable literature has been conducted by searching for the keywords relevant to the field of interest. The overall areas focused in the literature review are entrepreneurship, entrepreneurial ecosystem, and regional innovation systems.

5.3 Data Analysis

The process of data analysis involves in transformation of collected data into insightful and comprehensible conclusions. The process of analyzing data includes both data handling and interpretations where it involves the preparation of data for analysis, comprehending the data by conducting analysis and finally coming into conclusions (Creswell, 2018). As per Gibbs (2007) handling and sorting the gathered data in an organized manner is crucial for interpretation and analysis of data. A qualitative research analysis process is relatively creative compared to a quantitative research. This involves in the ability of the researcher to understand and recognize patterns in the data that are being analyzed alongside with the conceptual capability.

For the proposed study, the qualitative data which have been collected through interviews, focus groups and literature, and has been analyzed using the process described in the figure below.

Figure 9: Process of Data Analysis

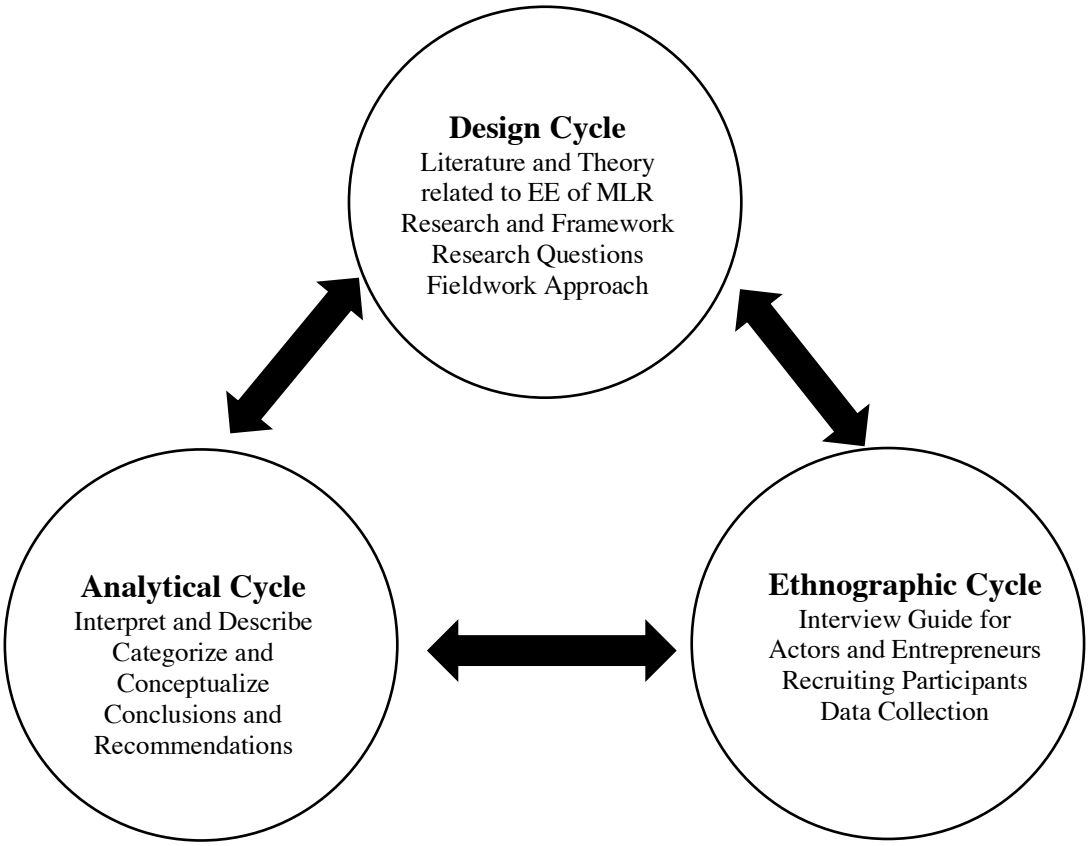


Source : Axelsson and Nilsson (2017) and Author

5.4 The Qualitative Research Cycle

This study aspires to follow a research process cycle known as the qualitative research cycle (Axelsson & Nilsson, 2017). This method describes how the steps that are being used in a research process are interlinked and performed in a cyclic process (Axelsson & Nilsson, 2017). The qualitative research cycle consists of three iterative cycles namely the design cycle, ethnographic cycle and the analytical cycle. Figure below illustrates the qualitative research cycle which will be used in the proposed study.

Figure 10: The Qualitive Research Cycle



Source: Axelsson and Nilsson (2017) and Author

As illustrated above, the design cycle involves in studying and reviewing the existing literature and theories. It also involves in designing the research framework and formulating the research questions with the fieldwork approach that is best suited. In the design cycle, the different steps involved were revisited and adjusted as new insights were gained before moving to the next cycle; ethnographic cycle.

In the ethnographic cycle, the focus is given on the field research. Based on the chosen fieldwork approach and formulated research questions, the interview guides will be prepared for different

interview groups. The data collection was mainly done through the semi-structure interviews, focus group and the literature survey.

From the collected data, the analytical cycle was processed. This cycle included gathering and interpretation of the data which involved in summarization and categorizing of collected data to be easily comprehended. The entrepreneurial ecosystem and it's actors were accessed and compared with the help of generated data and conclusions alongside with further recommendations were made.

5.5 Qualitative Interviews and focus groups

The data from the ten interviewees will be sorted using the qualitative research cycle method as described above. To retain the anonymity of the interviewee, identification codes will be utilized based on their sector of business operations or innovations. Following is a detailed chart of the interviews which were conducted for the thesis project.

Figure 11: Data Classification Table

Type of Interview	Number of Interviews	Startup Category	Identification Code
Extensive Interview	1	Food Tech Innovations	F&B1
Extensive Interview	1	Media and Communications Innovations	Com1
Extensive Interview	1	Medical Innovations or MedTech	MedT1
Extensive Interview	1	Climate technology innovations or Clean Tech	CleanT1
Extensive Interview	1	Manufacturing Innovations	Mfc1

Extensive Interview	1	Digital Design Innovations	Design1
Extensive Interview	1	Health Technology Innovations	Hlth1
Extensive Interview	1	Artificial Intelligence	Ai1
Extensive Interview	1	Cyber Security Innovations	CyberS1
Extensive Interview	1	Mobility Technology Innovations	Mobility1
Extensive Interview	1	Human Resource Innovations	HR1

Source : Author

For the data collection regarding the EE support system of the study a focus group consisting nine members of the MLR EE were conducted. Due to difficulties of the schedule overlaps, the focus groups were separated to three sessions where each session had three ecosystem actors. The organizations which participated in these focus groups are listed in the chart below. From the listed organizations, personnel from managerial positions contributed for the focus group in order to investigate the MLR's innovation and startup support system.

Figure 12: Focused innovation and entrepreneurial support organizations in MLR

Organization	Location	Key Function	Identification Code
Almi Företagspartner	Malmö	Almi Företagspartner AB is a Swedish state venture capital company founded in 1994 that aid in business development of new innovations	Almi
LU Innovations	Lund	Support for research based innovation development and financial support. Knowledge dissemination about agreements and idea protection	LUI
Venture Lab	Lund	Lund University student centered idea creation agency that create information	VntrLb

		and inspirational events, startup programs, give access to innovators to office space, network and supportive community.	
Skåne Startups	Malmö	Skåne Startups actively connects potential startups and scaleups in southern Sweden with global investors	SknStups
Innovation Skåne	Lund	Region Skåne's innovation company and together with private and public actors, Innovation Skåne guide and develop new opportunities for innovation and growth that improve the region	InnoSk
UNOPS S3i Innovation Center	Malmö	UNOPS's Innovation Center, UNOPS S3i focuses on identifying, developing and disseminating new innovative solutions from innovative companies, researchers and inventors from around the world. The Center's goal is to accelerate private investment in solutions to the global challenges formulated in Agenda 2030 and the 17 global goals.	S3i
Minc : Malmö Incubator	Malmö	Minc works with startups that have global ambitions. We offer coaching and advice in business development, fundraising, marketing and team building.	Minc
Venutre Cup	Malmö	Venture Cup is a competition for entrepreneurs with innovative ideas. Venture Cup offers inspiration, education, guidance and the oppertunity to build a solid network along with intial funding opportunities as well as workshops	VntrCup
Drivehuset	Malmö	Drivhuset supports people with ideas, freelancers, entrepreneurs, enthusiasts, and people who wants to make change on their entrepreneurial journey. At Drivhuset one can get knowledge and inspiration to take ideas and organizations forward.	DrivHst

Source : Author

5.6 Limitations

This study had first selected only the Lund region of Sweden as the innovation region of examination. After some research, it was apparent that majority of the innovators transfer to Malmö municipal area for the ease of doing business and due to the extensive entrepreneurial network. Therefore, Malmö Lund region was chosen as the functional region of this study. Furthermore, the study is limited to eleven entrepreneurs across eleven innovation sectors and eight ecosystem actors. The study can be enhanced by including more entreprenerusas well as more ecosystem actors.

Another limitation has been referencing to literature that has been conducted in region's native language; Swedish. For certain texts, translator software tools have been utilized yet lack of native language for the researcher has been a limitation for this thesis. Within the time limit of the thesis project, the institutions that were part of the EE has been restricted to regional institutions. There are more nationally spread institutions such as *Vinnova*, that could be utilized to expand this study. In a similar way, the study has been limited to regional innovation systems (RIS) and could be expanded to an analysis of national innovation systems (NIS) and it's interaction with EE as well.

5.7 Validity of the Research

To confirm the validity of this research, transcripts were written for each interview conducted and they were thoroughly read to have a deeper understanding. Next, the transcripts were summarized by highlighting key information in each interview conducted. The summarized data scripts were categorized according to the same categorization followed for the interview process. In order to verify the credibility of the data collected the transcripts written were shared with interviewees for their revision and feedback were generated. The finalized summarized table of interviews were taken into further analysis for interpretation and formulation of conclusions and recommendations.

When using a qualitative case study reliability, validity and transferability are significantly important to be addressed to retain the credibility and validity of the research (Yin, 2009 & Höst et al., 2006) The research design must adequately contain a set of logical statements and guidance so the quality of the study can be assessed. According to Yin (2009) by sanctioning the reliability,

validity and transferability of the study the researcher took steps to ensure the credibility of the study.

To ensure reliability of the research the data collection was organized to be systematic and structured. As reliability of a study identifies that the random variations are taken into consideration and the same results are achieved if the process is repeated (Höst et al., 2006). The interviews were made to be transliterated and followed an interview analysis framework with response codes to identify various data points. Following this method signified that the data could be easily shared and transliterated whenever it is needed. The research strategy and data collection methods are described in detail so that the reader comprehend the entire processes including varied circumstances.

Validity focuses on correct operational measures are undertaken when conducting the study. It is important for the concepts to be in the correct way they are meant to be measured (Höst et al., 2006). It was important to make sure that the research design correctly presented the valid research questions and project scope was relevant to the study. To verify that the correct methods were used to ensure validity of the study, the researcher conducted thorough literature reviews identifying the needed scope for the study. The interviews were thus created in relation to the literature review and the scope that the project aspired to analyze. Different data collection methods were used to deepen the understanding of connectivity of actors as well as how circumstances lead to various conditions (Carter et al., 2014). To understand the differences of responses and to analyze multiple explanations, the same set of interview questions were established via the carefully checked research framework. This framework helped and guided the researcher throughout the study. The semi structured interview framework allowed the study to explore various dimensions of the problem while taking cultural and other demographical nuances into context. In addition, different method of data collection and multiple sources of data collection helped the researcher identify various perspectives as well as achieve broad understanding (Carter et al., 2014).

In identifying if the results can be applied via generalizability and transferability to other contexts Höst et al. (2006) advices to clearly describe and explain the case study. In applying the model to two cities of Skåne region the researcher must be cautious to address the risk of low transferability (Yin, 2009). By clarifying every detail of the study, the researcher attests to increase the

transferability to other contexts and regions as well. In MLR context, the EE and how various actors are entwined to increase entrepreneurship is extensively explained to give the reader a clear understanding of the background context of this case study and research. By understanding the entrepreneurial ecosystem, work processes, cultural nuances and relationship between involved actors the reader understands when and where this study can be applicable (Höst et al., 2006).

6 Findings and Discussions

6.1 Entrepreneurs

Out of the eleven interviews, seven startups are based in Malmö region while four are based in Lund region. The interviewees were all of executive levels of the interviewed businesses and startups. They are all small enterprises which are of integral importance to the innovation ecosystem. Six of the companies has 0-5 employees, two of them had 5-10 employees and three of the companies had 10-20 employees. 42% of the companies were founded in year 2020 while 8% were from 2017 which was the earliest recoded year and 21% in year 2021 which is the latest. The industries covered by the candidates are food tech, media and communications, medical innovations, climate tech, manufacturing, digital design, health tech, artificial intelligence, cyber security, mobility technology and human resources.

44% of the candidates picked Malmö as the place of establishment of their company due to Malmö being the city of their residence. It was essential that the affordability of living was a good factor for the founders and executives. 24% of the candidates choose MLR as the region of establishment due to the entrepreneurial ecosystem. Further, this choice was strengthened as majority of the candidates were introduced to the ecosystem by Lund and Malmö Universities. The following section describe the reasons the entrepreneurs chose MLR as their region of operation.

The main incentives for the interviewees to choose this region as their region of entrepreneurial operation is as followes.

- City of Residence
- Affordability of living
- Entrepreneurial Ecosystem
- Innovation programs at Lund University and Malmö University
- Diversity and Inclusion
- Innovation network
- Entrepreneurial attitude and openness
- Ease of doing business

The entrepreneurs mentioned that it has an open network which is welcoming to new ideas and innovative startups. It was mentioned that "the talent in Malmö is eager, entrepreneurial, socially minded and a short introduction away" and that it is this open attitude to innovation alludes to why Malmö ranks 4th globally for patents per capita as identified by Forbes.

Further the Universities in the region seem to introduce talent to the ecosystem via programs such as Innovation Challenge by Venture Lab. Networking events such as "Startup Coffee" by Skåne Startups (previously known as Malmö Startups) have also introduced some founders to the ecosystem to begin their startup journey. For example MedT1 mentioned "The startup was founded at Lund University through the help of LU Innovation and received investments through LU Holdings."

However, when identifying the entrepreneurial difficulties, the lack of affordable and credible legal help has been a roadblock in expansion and establishment of small businesses and startups according to the entrepreneurs. Furthermore, there has been lack of sales channels due to smaller scale of the region, expressed candidate F&B1. Com1 had similar views and mentioned that the regions small market size has affected company in terms of acquiring clients. Ai1 had difficulties in market sizes and talent acquisition as well. The entrepreneur mentioned that there is a lack of experienced Ai practitioners and Ai recognition is generally lacking in MLR.

68% of the candidates mentioned there is a lack of access to soft funding for early stage startups especially in the validation phase. For growth companies, the founders expressed a dire need to

attracting more venture capital to the region as well. The international founders have expressed that it could be difficult to get into networks where information regarding various opportunities of the ecosystem could be spread by word-of-mouth. Furthermore, there is evidence of marginalization of female founders from internal networks.

An entrepreneur who was native to the region mentioned that there are some barriers to break to be included in the publicly funded incubators. There has been some pressure to cap their valuation at certain levels which was unfavourable for the expansion of the business as it did not resonate with the true market valuation of the startup.

Mfc1 mentioned that there is tendency of "greenwashing" in the ecosystem and that even though the company is manufacturing a circular economy product with sustainability as the main focus, the ecosystem help has rather been towards tech related startups. When it comes to food tech interviewee mentioned that the lack of industrial kitchen and test beds has been a large bottleneck in terms of expansion and R&D.

F&B1 further stated " *Most ecosystem help seems to be towards software or SaaS startups rather than foodtech. There has been an expectation of scaling up before ecosystem support is given, which makes it a problem as there is no support for R&D at validation phase which is the most important segment in food tech. There is a large amount of difficulty to overcome if the company doesn't have an organization number (at early stages). Generally we see more support for startups from Lund University in comparison to Malmö University*."

One of the entrepreneurs mentioned that the help from regional NyföretagarCentrum has been imperative to the growth of the company. When it comes to networks the food tech innovators are reliant and have been largely benefitted by the Food innovators network by Region Skåne.

Com1, a Lund University affiliated startup mentioned that the smaller scale of the MLR Ecosystem makes it easily approachable. The founder expressed that reaching out to ecosystem actors such as Minc, Ideon Innovations, LU Innovations can lead an entrepreneur in the right direction.

Com1 mentioned that the startup house of Malmö; Minc, promotes diversity and vibrancy of the region therefore it attracts great global talent. Hlth1, a German health tech startup based in Malmö

state that the great network of other entrepreneurs, good co-working places and the fact that the region offers business services at an affordable rate made it attractive for them to establish their operations in MLR.

The interviewees had mixed reviews regarding navigating the support system provided by the ecosystem. MedT1 mentioned that it takes time to navigate the ecosystem, and to understand the ecosystem it took the startup founders one and half years. The founders further mentioned that even after many months of mapping out, the information has been unclear. Yet they state the importance of taking time to understand the ecosystem and state "It is possible to make a mindmap but it takes time, dedication and many questions to the right people. It is important to engage with the ecosystem over time"

F&B1 mentioned that the founders knowledge so far has been acquired through Almi, Venture Lab and Food Innovations. Another interviewee mentioned, " it is important being proactive and good with people. Relentlessly reaching out is the only way to receive information that is of value" - Mobility1

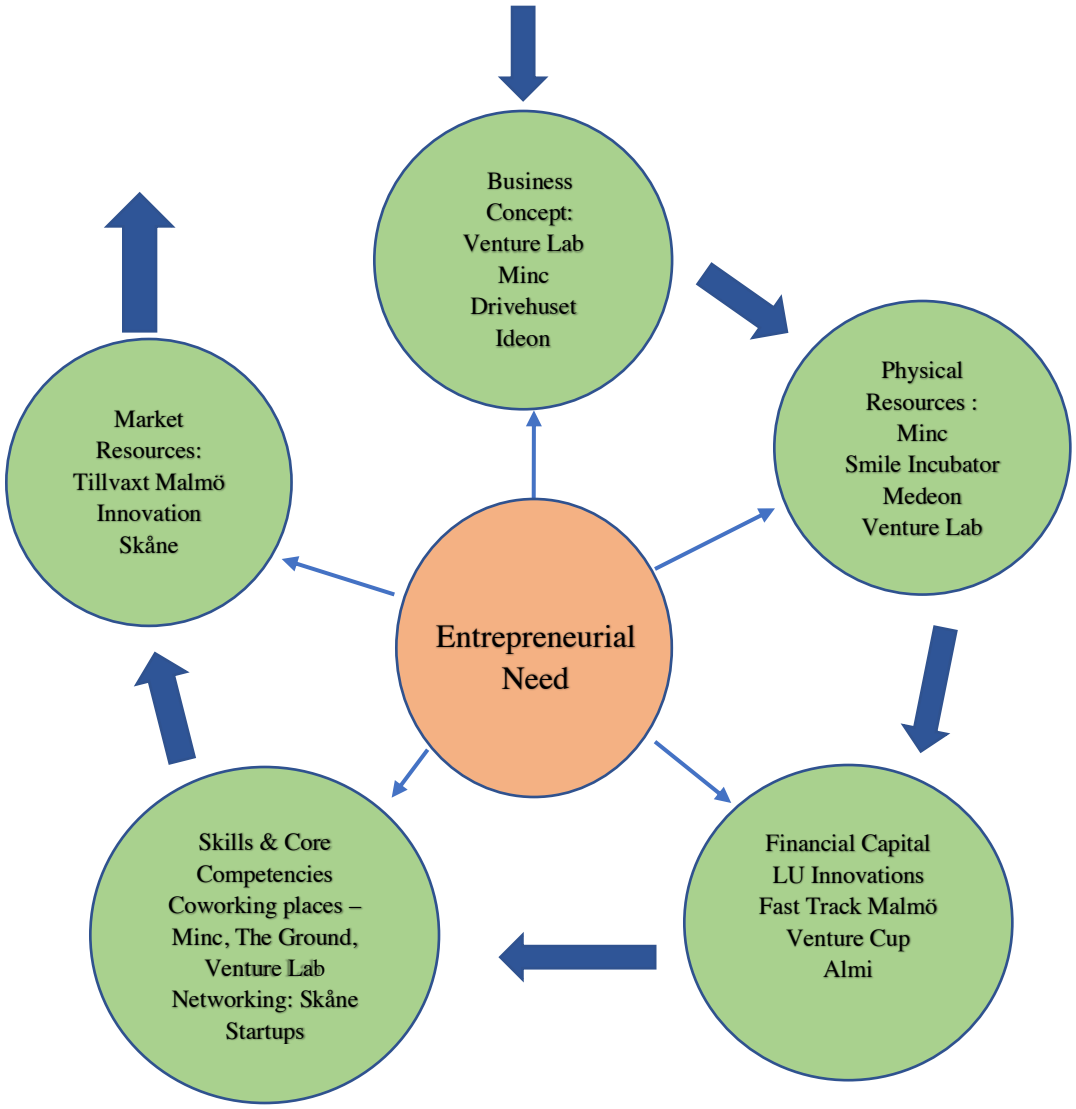
CleanT2 had positive reviews regarding the innovation ecosystem and mentioned that the business developers in incubators and accelerators have ample information and can lead a founder in the right direction. Hlth1 mentioned there were some difficulties in receiving the needed help and explained "For example Vinnova Grant. Everyone knows they provide initial funding for innovative ventures. However, there is a lot to be learnt before applying for this grant. And the assistance needed to successfully apply for this important grant is very difficult to find." F&B1

A founder with a negative experience stated regarding the MLR EE support "Difficult because it is not structured at all. A lot of time wasted due to lack of structure and many opportunities missedOverall the founders also made comments about perseverance and tenacity. CyberS1 stated "It is quite normal in entrepreneurship. We really have to push our barriers and push limits to be a successful entrepreneur"

Based on the collected data from the interviews and the literature review, the following Entrepreneurial cycle has been deduced as the journey of the typical entrepreneur of the MLR region. According to entrepreneurs' journey, usually ideation and business model development

occurs in the R&D stage. Once the idea phase is validated, branding and designing of the product is taken place. The manufacturing and distribution phases are followed with product marketing and sales. During each phase entrepreneurs face various bottlenecks such as testbeds, design talent, manufacturing facilities, distribution, and sales channels. A well-constructed ecosystem should have the ability to arm the entrepreneur with proper sales channels, test beds and financing for different stages.

Figure 13: Entrepreneurial Need Cycle in relation to MLR



Source : Author

6.2 Support Organizations

Based on the data gathered from the focus groups the EE actors believe there is good amount of help offered to the entrepreneurs. Yet they do see provisions gap in terms of social innovations. Candidate S3i mentioned the lack of testbeds have made a large provisions gap for entrepreneurs as many projects seem to halt due to lack of testbeds, industrial kitchens and maker spaces.

Interviewee from Skåne Startups mentioned that there is a lack of senior talent in the ecosystem. Therefore, when a startup reaches a certain maturity, the natural path is to relocate to Stockholm region or the United States where senior talent is abundant. Overall, the groups seem to agree about the difficulties that female entrepreneurs face when it comes to raising investment for their startups. Minc mentioned it is imperative to validate that half of the accelerator spots are given to female entrepreneurs.

According to EE actors about 1% of venture funding is received by female entrepreneurs. Almi candidate mentioned the importance of creating a centralized information platform as it takes an unnecessarily long time for the entrepreneurs to locate the needed help within the ecosystem support. The focus groups also identified that the majority of the ecosystem support has been dedicated to SaaS innovators and as a region it is vital to support all entrepreneurs. Yet due to agility and scalability of SaaS products and services it has gained popularity in the region.

Based on data provided by the entrepreneurs, the focus groups and the literature review, the EE of MLR has been helpful in providing entrepreneurs with leading incubators, accelerators, and good opportunities in creating innovation and entrepreneurial networks. Both entrepreneurs and EE actors identify that there is ample amount of business development support via the incubators and accelerators of the region. Though there are many grants available in the region, the entrepreneurs see that more support in application for such grants are needed. Entrepreneurs and EE actors both share the opinion that the region has good attraction however it needs to be much more improved in comparison to Stockholm region. Both parties acknowledge such regional attraction need to be amplified in order to attract more international venture capital and senior talent to the region.

When analyzing the entrepreneurial need, a provisions gap has been identified in terms of testbeds, industrial kitchens and especially for the food tech innovation sector. Both entrepreneur and the EE actors clarified that the lack of test beds in MLR has led to failing on many innovative startups who specialize in food innovations. In the mobility, HR and Health tech innovations, the entrepreneurs state that there is large gap in public procurement. The EE actors state the lack of long-term financing for projects have created a roadblock in helping entrepreneurs in sophisticated and scalable innovations. From the EE actors, other than Innovation Skåne, all other actors had been granted project base financing therefore lacked the ability to support entrepreneurs in long term developments.

Both entrepreneurs and EE actors emphasized that the lack of a centralized information platform has created a large bottleneck for emerging innovators. Many candidates elaborated creating such a centralized information system regarding the EE of MLR will aid both current and future entrepreneurs with identifying new local and international grants, networking events and new opportunities in relation to venture creation. Furthermore, as the entrepreneurs state that there is a barrier to penetrate the local network and majority of information is spread only within colleagues of known circles, such a platform will bridge the knowledge gap in the opportunities that arise within the regional ecosystem.

Entrepreneurs additionally stated that there is a lack of trademark and legal help within the ecosystem. However there has been help in patent related complications from institutions such as LU innovations. The Ai entrepreneurs along with cyber security and digital design innovators see a large gap in international VC funding in the region. This issue has been verified by institutions such as S3i Innovation center and Skåne Startups. Almi has helped thousands of entrepreneurs with initial funding in the region, yet the interviewees from Almi also stated that it is of paramount importance for the region to attract more international venture funding for expanding and scaling up of innovations.

The EE actors express that there is a large pool of talent that could be matched with innovative startups therefore the region needs more matchmaking events that focuses talent who do not belong to the local university systems. Utilizing an international language such as English has been

encouraged for local events as this will attract the overlooked populations to the EE. These groups have been identified as migrants and expats from other regions or cities. Though the region's Nyföretagarcentrum has some accounting help this help is very limited due to the resources of the organization. The entrepreneurs and the EE actors see a large benefit to be gained from increasing affordable legal and accounting help for the upcoming innovation.

7 Conclusion

This section reviews this research and answers the overarching research question along with sub questions. To recall, the main research question for this study has been as follows:

How has the entrepreneurial need been met by the entrepreneurial support system in the Entrepreneurial Ecosystem of Lund Malmö region.

In conclusion, it is evident that the EE of MLR is a sophisticated entrepreneurial ecosystem with multitude of support for the entrepreneurs. However, as the data showcases, there are some shortcomings within the EE which have been elaborated by entrepreneurs and EE actors or the support system.

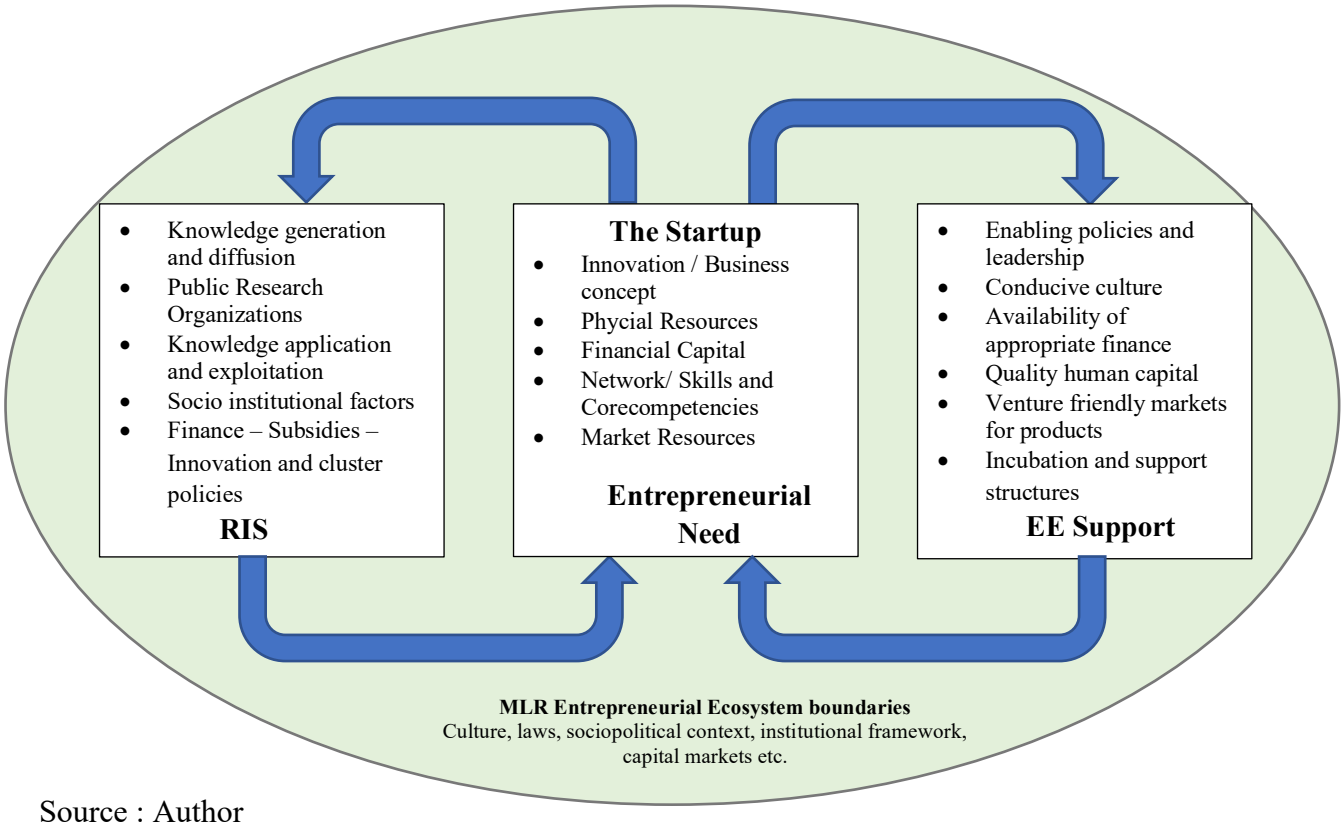
The sub questions of this research has been as follows:

SQ1. What does an innovator require from the EE of MLR?
SQ2. What are the needs that have been met?
SQ3. What are the needs that are the needs that have not been met?

When analyzing the first sub question the theoretical models such as Durr et al's (2000) entrepreneurial need model and Isenberg's (2011) Entrepreneurial ecosystem model aided to identify the requirements that is sought by an entrepreneur from the regional ecosystem. These requirements have been further confirmed by the data gathered via the interviews. In a nutshell, in this sample, the entrepreneur requires ecosystem support in areas such as business development,

innovation, or concept validation, seeking risk funding, network, skills and competence resources, sales channels and market resources. Analyzing the theoretical background, it is apparent that the RIS, Entrepreneurial Ecosystem and Entrepreneurial Need models are interlinked. While the RIS focuses on innovation creation, the EE identifies the cultural aspects, the institutions, and networks that build up within a region over time rather than the emergence of order within global markets (O'Connor et al., 2018). The interlink of these sub-systems are yet important for entrepreneur as well as the holistic entrepreneurial ecosystem of any given region. The figure below explores the interlink of the entrepreneurial need with its regional innovation system and the entrepreneurial ecosystem model.

Figure 14: MLR Entrepreneurial Ecosystem Frontiers



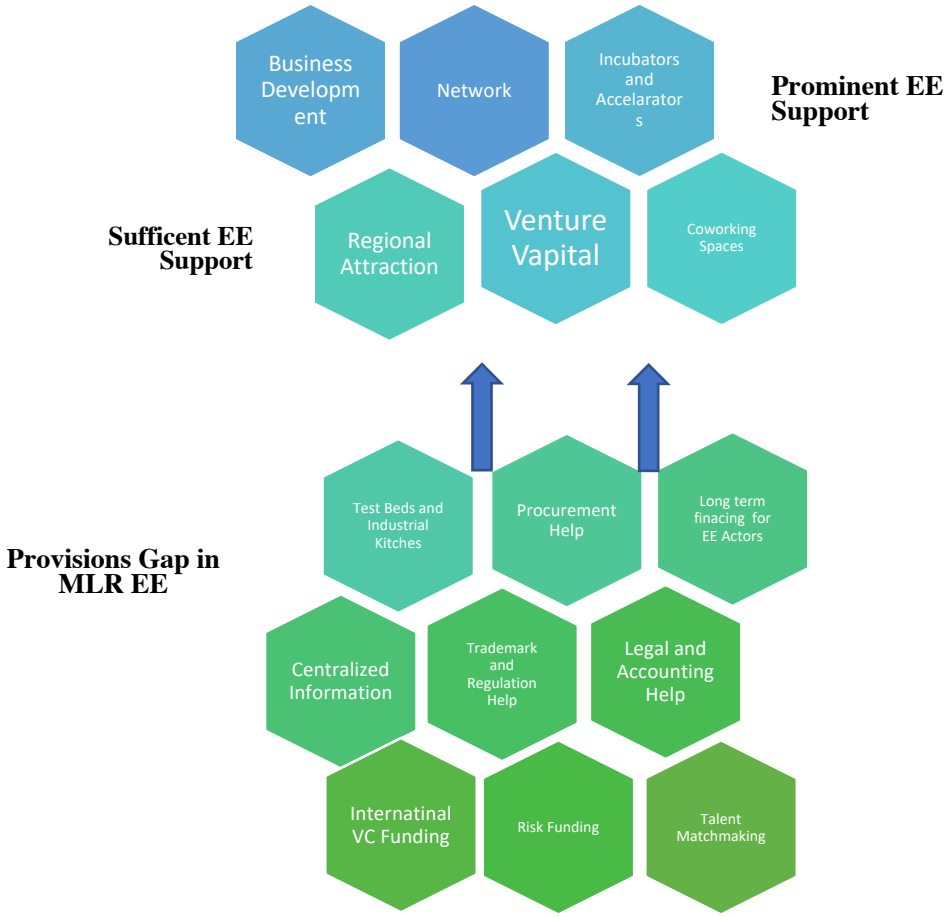
Source : Author

Though many of these needs have been met via incubators and accelerators such Minc, Ideon innovations, Venture cup, Venture lab, LU innovations, Level Malmö, Drivehust and other EE actors, there has been in a gap in attracting international VC funding for later stage development.

Further, due to smaller scale of the region, the entrepreneurs see a gap in sales channels and senior talent within industries such as artificial intelligence and climate technology. Such lack of sales channels and senior talent has impelled certain innovators to leave MLR and relocate to more developed EEs such as Stockholm region or Silicon Valley region of the United States.

Though the region has identified food tech as a key industry, the lack of testbeds and industrial kitchens have created large bottlenecks for the innovators of the region. As of now, the test bed that is available to region's innovators is "Krinova" food incubator – which is located in Kristianstad region. Based on the results and analysis the following figure represents the provisions gap that is visible in the MLR EE.

Figure 15: Prominent Support, Sufficient Support and Provisions Gap in MLR EE



Source : Author

7.1 Recommendations

Based on the analysis of the interviews, focus groups and following the literature review, following recommendations are the results of this thesis.

Help community organizations to promote international talent as well as create matchmaking events

Based on the data, currently the matchmaking events are centralized to university students. There is a large pool of international talent such as expats who could be useful to startups. Both companies and talent would benefit from the match making events and warm introductions.

Promote international languages as business language of the region

There is a large pool of international talent allocated in the region. The Business Development report of Malmö Municipality states that the city of Malmö contains 347,949 residents, with the age distribution of 48% under the age of 35. These statistics show that there are 179 nationalities represented in Malmö with 34.6% percentage of people born abroad. Furthermore, 47.2% of people of Malmö are with a foreign background.

Many founders have expressed lack of more international languages which has driven off global investors as well as created roadblocks for business operation. This has been amplified when innovation attraction and promotion events have been conducted in native languages even when majority of the applicants are from international backgrounds. The entrepreneurs see a large opportunity within MLR's international talent pool. Especially given that in Malmö municipality there is an unemployment rate of 13.9% for people aged 16–64, yet 50.7% of population has been educated to post-secondary level (Malmö Municipality, 2021).

A centralized platform where various ecosystem support structure can be accessible

Due to bureaucratic issues some startups have not been able to receive the help from accelerators and incubators. Furthermore, the startups which were founded by students seem to witness a dramatic reduction in the help they receive when the founders graduate or complete their academic programs.

Further, the ecosystem information has been limited to those who are only connected to incubators or university innovation systems. The functionality of such a platform can be built with the help of a community mapping organization and which could further act as a central resource or a web portal that startups can use to create a profile where they can share a public pitch deck and their intended funding goals – for example : The European Ai Startup Landscape webpage.

Access to procurement stage of local municipalities

The startups that drive with sustainability goals embedded in their core mission and provide socially innovative solutions to public and environmental issues request more transparency and access to municipal procurement. This stage has been especially difficult to immigrant startups as they lack the internal network and the language to qualify for the procurement stages

Mission oriented regional growth

The literature which was surveyed for the study and the collected data showcase that innovation operations in project areas such as Food tech innovations should focus on providing solutions to the overlooked areas such as lack of testbeds and equal opportunity for migrant and female entrepreneurs. Furthermore, the data collected during the focus group show that long term funded organizations such as Innovation Skåne has more success in helping the EE compared to short term and project based funded organizations. With mission-oriented innovation policies the officials can identify that funding innovation is a two-way process where on the one hand it could bring great returns on investment, yet on the other some investments fail. In the ecosystem perspective, even the failing startups create a spillover effect or create technology that is born in the ecosystem which can be used later by another innovator or a SSO to reach its goals in arenas such as social innovation or climate tech innovations.

Access to Data

Access to data in the MLR can be enhanced by establishment of regulatory sandbox which is a regulatory approach, typically summarized in writing and published that allows live and time-bound testing of innovations under a regulator's oversight. Novel financial products, technologies, and business models can be tested under a set of rules, supervision, and appropriate safeguards (UNSGSA, 2017).

Such regulatory sandbox can help Ai startups, as it eneables the entrepreneurs to have access to responsible use of data which could create value for the MLR innovation ecosystem. Such facilitation can promote Fin Tech and Ai innovations where companies can test their ideas and seek guidance directly from´ the regulators.

Venture Capital attraction

Creation of a collaborative gathering focused on global venture capitalists where investors' shared knowledge and attention can be accessed while showcasing talented startups in the region. Such an event will highlight the multifaceted and interesting mixture of industries and areas in the ecosystem.

In reflection of the seminal studies, Ankarorna and Holm (2016) had examined domains of the entrepreneurship ecosystem in Nairobi, Kenya. The authors had conducted a policy analysis, culture study and a country study of Kenya as well ecosystem support organization analysis in their research. Within the limitations of this thesis, this study did not conduct a policy analysis or culture study of MLR. Furthermore, the study by Alvaro and Agnieszka (2021) examines the location of entrepreneurs and the extent of the role of spatial context in entrepreneurship at the city level. In this thesis, spatial context has not been a determinant of exploration other than to the regional levels of MLR. The research by Ejermo et al (2021), the authors conducted a quantitative analysis of innovation creation and patent formation of Malmö region after the construction of the Oresunds bridge, which aided this study to identify the innovativeness of the region of focus.

7.2 Future research

This study can be extended to the whole Oresund's region with an extensive time frame. Incorporating Danish innovators and the Danish innovation ecosystem concentrated in the Copenhagen region. However, to complete the project in the given time frame, the researcher has chosen to focus on the Lund and Malmö Innovation and Entrepreneurial network. Further the entrepreneurial ecosystem could be further analyzed with other innovation models such as Quadruple Helix Model and Triple Helix Model. Furthermore, this study can be developed by conducting a policy analysis and incorporating a culture study of the MLR EE.

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9 Appendices

9.1 Interview Guides

Interview Questionnaire – For innovators and entrepreneurs from the eleven sectors

1. Name of the Innovation/ Startup
2. Location of the Startup
3. Business category
4. Founded Year
5. Briefly describe your business idea and activities
6. Why did you choose to start/expand your business in the Malmö Lund Region (MLR)?
7. What are some of the disadvantages/difficulties in running a business in the Malmö Lund Region?
8. How do you feel about the conditions for running a Startup or creating an Innovation in this region?
9. How would you describe your knowledge about the MLR Entrepreneurial Ecosystem regarding innovation/business development and the organizations within it?
10. How/where did you get this information?
11. Have you made use of the MLR Entrepreneurial Ecosystem in Scania/Sweden (for start-up and scale-up)? What's your purpose for using it?
12. What segments of the EE have you used? Ex. regional incubators, coworking spaces?
13. How would you describe your journey navigating the MLR Entrepreneurial Ecosystem (Easy, time-consuming, impossible…?)
14. Did you get the help you needed?

15. What kind of changes/improvements would you like to see?

16. How would you like to gain more knowledge about/use the MLR Entrepreneurial Ecosystem?

17. Would you recommend your friends/ colleagues to use the MLR Entrepreneurial Ecosystem when they want to start or expand their business? Why/ why not?

18. Which aspects of the MLR Entrepreneurial Ecosystem is the most important for a new Startup looking to establish or move into the region?

Interview Questionnaire – Ecosystem actors and facilitators – Focus Group

1. Name of the organization
2. Your role within the organization
3. Briefly describe the mission of your organization
4. How many innovations or startups has it aided/incubated or accelerated since inception
5. What kind of innovation/startup help do you offer
6. As a collective, in your experience and knowledge, what are the main resources that are available to innovators in MLR
7. What kind of innovations/startups thrive in this region, why?
8. In your experience, what are some of the roadblocks startups or innovators face in different industries in MLR
9. What are some of the industries or innovation categories that thrive in MLR
10. Does it matter the gender or nationality of the innovator/founder or any other demographic restraint that might create a barrier to the founder/innovator
11. How does entrepreneurs find your organization?
12. Who/what organizations are your close collaborators in the EE?
13. What are your opinions/experience/knowledge regarding the EE of MLR?
14. What are the shortcomings of the EE in MLR
15. What resources are needed to make MLR more innovation/Startup friendly?
16. What are the main issues that startups face that your organization cannot help with? Why?

9.2 Coded Interviews

Startups

Response Code/Organization	**Basic Idea**	**Points Highlighted**	**Key Understanding**
F&B1	The lack of industrial kitchen and test beds has been a large bottleneck in terms of expansion and R&D. Skåne Startups, Almi, Venture Lab and Food Innovations Network is key when it comes to gathering knowledge about what help is offered in the ecosystem	Innovation programs at Lund University and Malmö University Entrepreneurial Ecosystem Networking events by Skåne Startups The lack of affordable and credible legal help has been a roadblock in expansion and establishment of businesses. The financing knowledge so far has been acquired through Almi, Venture Lab and Food Innovations Network.	lack of sales channels due to smaller scale of the region lack of access to soft funding for early stage startups The help recieved from Lunds NyföretagarCentrum, Skåne has a good network for food innovators.
Com1	Smaller scale of the MLR Ecosystem makes it easily approachable There is more capital in Stockholm, therefore to grow the business more people tend to shift from MLR to Stockholm region.	Regions small market size has affected company in terms of acquiring clients lack of access to soft funding for early stage startups The fact that MLR Ecosystem is small makes it easily approachable. For example reaching out to Minc, Ideon	The startup was founded in Lund University through the help of LU Innovation and received investments through LU Holdings

		Innovations, Lu Innovations can lead you in the right direction.	
MedT1	Difficult to get into networks where information regarding various opportunities of the ecosystem could be spread by word-of- mouth	City of Residence The startup was founded at Lund University through the help of LU Innovation and received investments through LU Holdings.."	It takes time to navigate the ecosystem, and to understand the ecosystem it took the startup founders one and half years.
CleanT1	Exclusion of female founders from internal networks MLR EE needs system where information for new ventures can be seen at one place, a newsletter or latest opportunities for different ventures based on the category of the startup	Innovation programs at Lund University and Malmö University Entrepreneurial Ecosystem Innovation Challenge by Venture Lab. Currently the company is at Ideon Science park and they help us with the information available.	Incubators and accelerators have ample information and can lead a founder in the right direction The ecosystem was the key reason to start in this region.
Mfc1	Tendency of "greenwashing" in the ecosystem Pre-Seed funding has been quite challenging as there arn't many business angels or VCs in the region. We need more talent in the region, more VCs and more business angels attracted to the region. This could be done through events that showcase different companies in the region who are looking for talent and funding.	Diversity and Inclusion Affordability of living lack of access to soft funding for early stage startups	lack of affordable and credible legal help has been a roadblock in expansion and establishment of startup Networking : via the incubators and co-working spaces. Also events by Skåne Startups

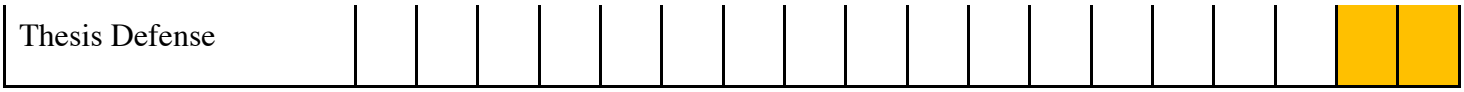
Design1	Important to receive help during validation phase. Weather it is help with the business registration process or early stage financing. Open innovation environment and the entrepreneurial spirit of everyone who is involved with the ecosystem.	lack of access to soft funding for early stage startups More collaboration and inclusivity within the actors and the ecosystem partners is needed in the MLR EE	Difficult to navigate the ecosystem because it is not structured. A lot of time wasted due to lack of structure and many opportunities missed
Hlth1	Help from regional NyföretagarCentrum has been important. We have good knowledge about the EE and we think it is way too many resources poured into the ecosystem. It is not efficient therefore the resources are wasted on much too expansive and cluttered ecosystem. Too many actors are not collaborating and have selective processes when it comes to startup help.	City of Residence Difficulty in grant application processes. We need to more workshops and help offered in the ecosystem on how to access funding such as grants.	Difficult to get into networks where information regarding various opportunities of the ecosystem could be spread by word-of-mouth The navigation is not easy at all. There are many organizations offering many opportunities but due to lack of centralization we have missed most of it.
Ai1	Lack of experienced Ai practitioners and Ai recognition is generally lacking in MLR Need of regulatory sandboxes Not very good, the information is scattered. Sometimes bureaucracy and red tape has been an issue. Especially in gaining patents.	Benefit of Malmö is in costs of living and renting. We hope Malmö can attract more international talent and market but at the moment the margins are very small. Small market sizes and talent acquisition is an issue in MLR Need to attract more venture capital to the region	The current market, experienced AI practitioners and AI recognition is lacking in Malmö. Majority of our customers and connections are in north of Sweden or other parts of Europe. Majority of the ecosystem information is distributed by Skåne Startups and The Ground

CyberS1	Need to attract more venture capital to the region Investment market is relatively smaller in this region. It seems the VCs tend to focus more in the Stockholm region. Malmö has a good economy, the conditions are good. The pandemic made everything harder but geography-wsie Malmö is a good region to have a business.	Entrepreneurial Ecosystem lack of access to soft funding for early stage startups Need to attract more venture capital to the region Maybe the ecosystem needs more accountants and tech help. Minc tried to have a tech help program but it did not span out. For startups these kinds of help is very valuable.	There arn't many match making events or talent attraction or retention programs happening in the region. Also bigger companies in the region is not aware of the products and solutions that startups provides. There is a gap of connectedness between large organizations, startups, market and talent. The MLR EE needs more accessible soft funding, accessible verification grants for startups, and test money such as leapfrogs summer grant was very helpful as an early stage company.
Mobility1	Difficulty of accessing publicly funded incubator If you are not part of an incubator (which is already very difficult) then it is very difficult for startups to receive some basic help. Such as legal, accounting or business advisors.	Entrepreneurial attitude is very high in MLR EE Relentlessly reaching out is the only way to receive information that is of value There should be more investment opportunities through the ecosystem for all startups. Not just the selected few	Relentlessly reaching out is the only way to receive information that is of value. Ideon Innovations, Skåne Startups and Mindpark have been important EE actors
HR1	We have found incredible talent in the region. However, there is a mismatch between what is offered in the ecosystem and what is needed	Ease of doing business lack of access to soft funding for early stage startups	Tillväxt Malmö and Skåne Startups have been helpful in making introductions to the organizations

	by the startups. There is also talent who are not matched with the right industries or startups due to lack of connective structures and community organizations.	Quite difficult to navigate the EE because there is no credible center point of referral for the ecosystem. We are still exploring which ecosystem partners might suit us and how to receive the help we need.	within the ecosystem and building investor relations A centralized website seems like the easiest solution to scattered information

9.3 Project Plan

Activity /Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Project Plan																		
Document defining the goals																		
Define research question																		
Background/introduction																		
Literature review Theory																		
Literature review Methodology																		
Interview guides																		
Collect data																		
Combine Empirical findings																		
Analysis																		
Write report																		
Hand in first draft																		
Hand in final draft																		
Update final draft after feedback																		
Thesis Submission																		
Prepare presentation																		


Thesis Defense