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**DRIVERS AND INCENTIVES OF INNOVATION AND
ENTREPRENEURSHIP IN EU**

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AVRUPA BİRLİĞİ'NDE GİRİŞİMCİLİK VE İNOVASYONA YÖNELİK TEŞVİK SİSTEMLERİ

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Avrupa Birliği, rekabetin kilit unsurları olarak inovasyon ve girişimciliği desteklemekte ve doğru zihniyet ile girişimcilik becerilerinin pekiştirilmesi suretiyle Avrupa'da girişimci ruhun geliştirilmesinin önemini vurgulamaktadır. Rekabet ve ekonomik büyümenin önemli bir belirleyicisi olarak, inovasyon ve girişimcilik modern ekonomilerde yer alan birçok sanayi için önemli konulardır. İnovasyon, sosyal ve ekonomik refah bakımından katma değer sağlamaktadır. İnovasyon ve girişimcilik kavramları yaygın olarak birlikte kullanılmakta olup fakat her zaman benzer anlayış ile kullanılmamaktadır. Her iki konu arasında var olan güçlü bir ilişki söz konusudur. Bu çalışma her iki alanda da ilgili literatüre genel bir bakış sağlamaktadır. Bu bağlamda, ilgili terimler ve tanımlamalar tartışılmıştır. Çalışma aynı zamanda inovasyon ve girişimciliğin farklı teşvik sistemlerini ve aralarındaki ilişkiyi incelemektedir. Avrupa Birliği doğrudan finansman kaynakları bakımından iyi konumlandırılmış durumdadır. Bu fonlamalara örnek olarak inovasyona teşvik veren bölgesel ve kırsal kalkınma fonları verilebilir. Ayrıca KOBİ'lerinde sağlanan teşviklerden yararlanabilecekleri fonların örnekleri yer almaktadır.

Anahtar Kelimeler: İnovasyon Destekleri, İnovasyon Fonları, Girişimcilik Destekleri, Girişimsel Çevre, KOBİ, Avrupa Birliği

ABSTRACT

Master Thesis

DRIVERS AND INCENTIVES OF INNOVATION AND ENTREPRENEURSHIP IN EU

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European Union supports innovation and entrepreneurship as key elements of competition and emphasize on developing an entrepreneurial spirit in Europe by means of reinforcing the right mentality and entrepreneurial skills. As a key determinant of competitiveness and economic growth, innovation and entrepreneurship are important issues for many industries in modern economies. Innovation brings value-added to social and economic well-being. The terms innovation and entrepreneurship are commonly used but not always with the same understanding. There is an obvious strong relationship between these two subjects. This study gives an overview of relevant literature in both areas. In this context, relevant terms and definitions are discussed and presented. The study investigates various drivers of innovation, entrepreneurship and relationship between these important two issues and each driver. The EU is well-placed to direct funding programmes, such as regional and rural development funds, to encourage innovation and there are many good examples of funds which SMEs can benefit from these incentives.

Keywords: Innovation Incentives, Innovation Funds, Entrepreneurship Incentives, Entrepreneurial Environment, SMEs, European Union

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ABBREVIATIONS

| | |
|----------------|---|
| CIP | Competitiveness and Innovation Framework Programme |
| COSME | Programme for the Competitiveness of Enterprises and SMEs |
| EIB | European Investment Bank |
| EIP | Entrepreneurship and Innovation Programme |
| EIT | European Institute for Technology and Innovation |
| EU | European Union |
| FP6 | Sixth Framework Programme |
| FP7 | Seventh Framework Programme |
| GDP | Gross Domestic Product |
| H2020 | Horizon 2020 |
| ICT | Information and Communication Technology |
| ICT-PSP | Information Communication Technologies Policy Support Programme |
| IEE | Intelligent Energy Europe Programme |
| KS | Knowledge Sharing |
| MFP | Multifactor Productivity |
| OE | Opportunity Evaluation |
| OECD | Organisation for Economic Co-operation and Development |
| OMC | Open Method of Coordination |
| R&D | Research and Development |
| RDI | Research, Development and Innovation |
| S&T | Science and Technology |
| SBIR | Small Business Innovation Research |
| SMEs | Small and Medium-Sized Enterprises |

1. INTRODUCTION

This study seeks to provide a roadmap to the innovation and entrepreneurship literature. The second section starts with addressing the question of how innovation and entrepreneurship is understood and defined at conceptual level. The growing importance of innovation to entrepreneurship is reflected in a dramatic increase in literature that addresses the role and nature of innovation (Drazin and Schoonhoven, 1996; Drucker, 1985). Within the second section, the levels and types of innovation are provided as an explanation. Innovation takes many forms and it can be a process, product, service, marketing technique, managerial and organisational philosophy or anything that helps firms to perform better. These innovation types vary from degree of newness and impact. The link between entrepreneurship and economic development is one of the focus of section one. This is important, because entrepreneurship has been considered as a source for improving the economic performance. One of other theme is the importance of entrepreneurship to innovation. The facts that innovation is important to growth and, in turn, entrepreneurship is important to innovation.

The third section continues with the economic growth, innovation and entrepreneurship drivers. Under these three main headings, relations between each driver and the main headings have been examined respectively. As an example for one of overarching, when we evaluate the relationship between economic growth and entrepreneurship, it can be said that, entrepreneurs create new businesses, and new businesses in turn create jobs, intensify competition, and may even increase productivity through technological change. High measured levels of entrepreneurship will thus translate directly into high levels of economic growth. With the spread of capitalism and globalization, entrepreneurship has gained more importance than ever before and there is significant relationship between level of entrepreneurial activity in a country and its economic growth (Wigwam & Venter, 2004 and GEM 2002).

The fourth section moves to European context and starts with the the Lisbon strategy which is an EU programme and aims to improve the productivity and competitiveness of the EU economy. Within this section the midterm review of this strategy has been examined. Besides, research and innovation policy have been highlighted which are the cornerstones of the European Union's Lisbon Strategy. After Lisbon Strategy, it has been adressed to EU 2020 strategy which relies on

innovation as the core driver of economic dynamics. The chapter continues with the title of funding research and innovation. In this chapter, major funding programmes can be aligned as Competitiveness and Innovation Framework Programme, FP7 Programme, Programme for the Competitiveness of Enterprises and SMEs (COSME) and The EU Framework Programme for Research and Innovation (HORIZON 2020).

2. INNOVATION AND ENTREPRENEURSHIP

2.1. Defining “Innovation” in a Conceptual Context

Innovation has been and continues to be an important topic of study for a number of different disciplines, including economics, business, engineering, science, and sociology. Despite the fact that innovation has been studied in a variety of disciplines, the term is often poorly understood and can be sometimes confused with related terms such as change, invention, design, and creativity. It is also closely associated with terms such as growth and change. Related concepts include invention, growth, creativity, design, exploitation, change, failure, entrepreneurship, customers, knowledge, and society (O'Sullivan, 2008).

According to O'Sullivan (2008), innovation is the process of making changes to something established by introducing something new. In the organizational context innovation can occur to products, processes, or services. As such, it can be radical or incremental, and it can be applied to products, processes, or services and in any organization. It can happen at all levels in an organization, from management teams to departments and even to the level of the individual (O'Sullivan, 2008).

Innovation is one of the most critical competitive advantages of firms (Chapman & Hyland, 2004; Hamel & Prahalad, 1994; Vokalo, 2000). Vokalo (2000) states that such an intangible resource, innovation, is a kind of “capital” for the organization to possess as a competitive advantage. Innovation has been broadly defined as “an idea, a product or process, system or device that is perceived to be new to an individual, a group of people or firms, an industrial sector or a society as a whole” (Rogers, 1995). It can be divided into three categories: product innovation, process innovation and organizational innovation (Vakola, 2000).

A broader approach refers to innovation as the development of new products, new processes, new sources of supply, but also to the exploitation of new markets and the development of new ways to organize business. One can distinguish between more incremental innovations and more radical innovations. It is important to note that innovation does not only refer to the first introduction of novelty by a first mover, but also to the spread of the innovation to other actors in the economy. An important distinction in the innovation literature is between innovations that are new to the

world, innovations that are new to the domestic market or innovations that are new to the firm (Fagerberg, 2005). In other terms, innovation can be seen as the business of science organizations. The early research on innovation tended to address the organization's ability to respond and adapt to external and/or internal changes (Burns and Stalker 1961; Hull and Hage 1982). Subsequent work on innovation stressed more pro-active innovation and distinguished between types of innovation.

The concept of innovation has become more complicated in other ways as well. The first major scholar to address this topic, Joseph Schumpeter, defined innovation as encompassing the entire process, starting from a kernel of an idea continuing through all the steps to reach a marketable product that changes the economy (Baker, 2002). Today, there is not only a distinction between three major types of innovation (process; product/service; and business concept) but current scholars now distinguish levels of innovation (incremental to radical and sustaining versus discontinuous), no longer restricting the term to major innovations that change the economy. Finally innovation is no longer restricted to the process of creating something new from beginning to end but can include the capacity to quickly adopt externally created innovations that may be of benefit to the organization.

An important distinction is normally made between invention and innovation. Invention is the first occurrence of an idea for a new product or process. Innovation is the first commercialization of the idea. Sometimes invention and innovation are closely linked in the literature, to the extent that it is hard to distinguish one from another (biotechnology for instance). While inventions may be carried out anywhere such as, for instance, in universities, innovations occur mostly in firms in the commercial atmosphere. A firm normally needs to combine several different types of knowledge, capabilities, skills and resources in order to be able to turn an invention into an innovation (Fagerberg, 2003). In fact, the concept of innovation refers to the putting into practice of a novel idea or an invention. A narrow strictly technological approach focuses specifically on product and process innovations, or technological innovation, often said to be the result of knowledge-intensive (technological) entrepreneurship.

2.1.1. Levels of Innovation: Radical and Incremental Innovation

The definition of innovation does not refer to the size and scope of the change on products, processes or services. Innovation commonly classified as either radical innovation or incremental innovation. This distinction primarily focused on the extent of newness. Christensen (1997) advanced the concept of innovation by disentangling the attributes of newness and impact. Since radically new innovations do not always have a significant impact, he differentiates between sustaining versus discontinuous innovations. Sustaining innovations improve the performance of established products or services. Discontinuous innovations bring to market very different products or services that typically undermine established products and services in the particular market sector.

Radical innovation is about making major changes in something established. Focus is significant in relation to this issue. A change can represent a radical innovation when viewed at a technological level, but the impact may be only incremental when viewed at an organizational level. When we examine innovation, it is the impact at this level that we are interested in. The term radical often refers to the level of contribution made to the efficiency or revenue of the organization (MacLaughlin, 1999). Radical innovation can threaten to transform the industry itself by destroying the existing market and thus creating the next great wave (Christensen, 1997; Utterback, 1996). Undertaking radical innovation can bring dramatic benefits for an organization in terms of increased sales and extraordinary profits, but it is also highly resource intensive and risk laden.

Concerning incremental innovation, although radical innovations often make headlines, most organizations spread the risk associated with innovation by also looking for small or incremental innovations to their products, processes, and services. In fact, some companies shy away from radical innovations altogether, preferring instead to invest in incremental innovation. Incremental innovation is less ambitious in its scope and offers less potential for returns for the organization, but consequently the associated risks are much less.

There are advantages and disadvantages to both incremental and radical innovation. Radical innovation has the advantage of creating a step change in

growth. The disadvantage is the high level of risk and high cost of failure. The advantages of incremental innovation are lower risk and the possibility of achieving small degrees of growth. However, the disadvantage compared with radical innovation is the slowness to reach growth targets before competitors, leading to a loss of competitive advantage (O'Sullivan, 2008).

2.1.2. Categories (Types) of Innovation

There are three types of innovation which are process, product/service, and strategy. (Baker, 2002) Each these can vary from incremental to radical (degree of newness) and from sustaining to discontinuous (impact). There are also important relations between these types of innovation. For example, a strategy innovation may necessitate process, and/or product innovations (Baker, 2002).

The term innovation is often associated with products. When we think about innovation we think about a physical product: a television, car, or digital music player. However, innovation can also occur in processes that make products, services that deliver products, and services that provide intangible products. Many services don't involve physical products at all. Product innovation is about making beneficial changes to physical products. Incremental product/service innovation is oriented toward improving the features and functionality of existing products and services. Radical product/service innovation is oriented toward creating wholly new products and/or services. Discontinuous products and services are increasingly likely with ever-faster new product/service development. Organizations must be constantly on the lookout for discontinuous new products and/or services. Although product/service innovation and process innovation are not the same thing, they are often interconnected. (Baker, 2002)

Process innovation is about making beneficial changes to the processes that produce products or services. Service innovation is about making beneficial changes to services that customers use. (O'Sullivan, 2008) Process innovation became an important topic with the rise of the quality and continuous improvement movements and, then again, with the more recent attention directed at change management, organizational learning and knowledge management. Discontinuous process

innovation can originate outside the industry and/or may be more or less serendipitous.

For Strategy or Business Concept Innovation, it is, of course, possible to incrementally improve one's business strategy but Hamel (1996, 2000) contends that radical business concept innovation is now paramount. If radical business concept innovation is successful, it is by definition discontinuous.

2.2. Defining “Entrepreneurship” in a Conceptual Context

Entrepreneurship is also often discussed under the title of the entrepreneurial factor, the entrepreneurial function, entrepreneurial initiative, and entrepreneurial behaviour and is even referred to as the entrepreneurial spirit. In this regard, entrepreneurship – the entrepreneurial function - can be conceptualized as the discovery of opportunities and the subsequent creation of new economic activity, often via the creation of a new organization (Reynolds, 2005). The entrepreneurial function implies the discovery, assessment and exploitation of opportunities, in other words, new products, services or production processes; new strategies and organizational forms and new markets for products and inputs that did not previously exist (Shane and Venkataraman, 2000).

The entrepreneurial factor is understood to be a new factor in production that is different to the classic ideas of earth, work and capital, which must be explained via remuneration through income for the entrepreneur along with the shortage of people with entrepreneurial capabilities. Its consideration as an entrepreneurial function refers to the discovery and exploitation of opportunities or to the creation of enterprise. Entrepreneurial behaviour is seen as behaviour that manages to combine innovation, risk-taking and proactiveness (Miller, 1983). In other words, it combines the classic theories of Schumpeter's innovative entrepreneur (1934, 1942), the risk-taking entrepreneur that occupies a position of uncertainty as proposed by Knight (1921), and the entrepreneur with initiative and imagination who creates new opportunities. Reference to entrepreneurial initiative underlines the reasons for correctly anticipating market imperfections or the capacity to innovate in order to create a “new combination”. Entrepreneurial initiative covers the concepts of creation, risk-taking, renewal or innovation inside or outside an existing

organization. Lastly, the entrepreneurial spirit emphasizes exploration, search and innovation, as opposed to the exploitation of business opportunities pertaining to managers. All this explains why entrepreneurship is described in different ways.

Table 1. Definitions of the entrepreneurship.

| Author | Definitions |
|----------------------------|---|
| Cole (1968) | The entrepreneurship is an activity dedicated to initiation, maintenance and development of a profit oriented business. |
| Drucker (1985) | The entrepreneurship is an innovation act who presupposes the endowment of the existing resources with the capacity of producing wealth. |
| Gartner (1985) | The entrepreneurship is the creation of new organizations. |
| Hisrich and Peters (1989) | The entrepreneurship is the process of creating something different, with value, by allotting the necessary time and effort, presupposing the taking of financial, social and personal satisfaction, personal satisfaction, physical risks, and obtaining monetary rewards and personal satisfaction. |
| Stevenson et al. (1989) | The entrepreneurship is following an opportunity irrespective of the existing resources |
| Kaish and Gilad (1991) | The entrepreneurship is first of all a discovery process and secondly is the process of acting on an opportunity of lack of balance. |
| Herron and Robinson (1993) | The entrepreneurship is a set of behaviours which initiate and manage the re-allotment of economic resources and whose purpose is the creation of value by these means. |

Source: Misra and Kumar (2000).

2.2.1. Entrepreneurs: Types and Conceptual Approaches

The concept of entrepreneurship cannot be complete without talking of entrepreneurs - individuals who give entrepreneurship sense and version. Entrepreneurship is an activity that is action-oriented. It is a world of immense creativity and innovation inhabited by entrepreneurs, the individuals who innovate, take risk and create value in form of new products and services. The term

entrepreneur is derived from a French word “entreprendre” meaning to undertake. It is the entrepreneur who undertakes to organize, manage and assume the risks of business (Bird, 1989; Kuratko & Hodgetts, 1989). In this context, an entrepreneur is a person who starts an enterprise. Entrepreneurs are innovators who come up with new ideas for products, markets or techniques. To put it very simply an entrepreneur is someone who perceives opportunity, organizes resources needed for exploiting that opportunity and exploits it. Further, an entrepreneur is an innovator who recognizes and seizes opportunities, converts those opportunities into workable ideas, adds value through money, time, effort and skills, assumes the risks of the competitive market place to implement these ideas and realizes the rewards from these efforts.

Table 2. Definitions of the entrepreneur.

| Author | Definitions |
|--------------------------|--|
| Schumpeter (1934) | An entrepreneur is a person making new combinations causing discontinuity. The realization of new combinations may include a new product or a quality of a product, a new production, finding a new source of raw materials or reorganization of the industry. |
| Hoselitz (1960) | An entrepreneur is a person who buys at a price that is certain and sells at a price that is uncertain. |
| Leibenstein (1968) | An entrepreneur is a person who owns all the necessary resources to produce and launch on the market a product which responds to a market deficiency. |
| Kirzner (1985) | An entrepreneur is a person who perceived the existence of profit opportunities and initiated some actions to complete the unsatisfactory current needs. |
| Bygrave and Hofer (1991) | An entrepreneur is a person who perceives an opportunity and creates an organization to follow it. |

Source: Misra and Kumar (2000).

Entrepreneurship is of two types; opportunity-based entrepreneurship and necessity-based entrepreneurship. In opportunity-based entrepreneurship, an entrepreneur perceives a business opportunity and chooses to pursue this as an active career whereas in necessity-based entrepreneurship, an entrepreneur is left with no other viable option to earn a living. It is not the choice but a compulsion, which

makes him/her choose entrepreneurship as a career. (Mokaya, Namusonge and Sikalieh, 2012)

There are three main conceptual approaches to entrepreneurship that can be distinguished in the literature. The first approach focuses on the entrepreneurial function, the second on the performance of enterprises and the third on owner-operated enterprises.

The functional perspective is concerned with the dynamic actors that make key decisions on investment, production, innovation, location, or research and development. This conception of entrepreneurship is broader than that of entrepreneurs who run their own businesses. It also includes managers of multinational firms, state enterprises, or non-profit organizations and a variety of dynamic intrapreneurs within organizations. In this perspective, entrepreneurship is a psychological trait referring to dynamism, creativity, and originality. As in the early Schumpeterian tradition, the difference between entrepreneurial behaviour and innovation is blurred: entrepreneurial behaviour is innovative behaviour. If one is not innovative, one is not entrepreneurial. (Szirmai, Naudé, & Goedhuys, 2011)

The second strand of research focuses on the firm as the key economic actor. The firms studied include owner-operated firms, incorporated joint stock companies, state-owned firms, joint ventures, and subsidiaries of multinationals. The firms are the units that make the key decisions on investment, on branching into new activities or sectors or relocating to other countries. There is by now a large literature on firm-level behaviour in developing countries, examining firm characteristics, including their economic performance, their innovative performance, their capabilities and their business strategies (Goedhuys et al. 2008; Goedhuys and Sleuwaegen 2010).

The third research tradition deals with an important sub-set of firms, namely owner-operated enterprises. The entrepreneur is the person who is both owner and actively involved in running his/her own business. Here the focus is often on SMEs and selfemployment, as exemplified by many papers in this collection. Like the second approach, this research tradition tries to distinguish between high potential, innovative firms that survive and grow and stagnant firms that barely survive or exit the market. (Amsden, 2001)

The literature distinguishes mainly 3 functions of an entrepreneur; innovation, risk and uncertainty bearing, and organization building.

As first, innovation is one of the most important functions of an entrepreneur according to Schumpeter. An entrepreneur uses information, knowledge and intuition to come up with new products, new methods of reducing costs of a product, improvement in design or function of a product, discovering new markets or new ways of organization of industry. Through innovation, an entrepreneur converts a material into a resource or combines existing resources into new and more productive configurations. It is the creativity of an entrepreneur that results in invention (creation of new knowledge) and innovation (application of knowledge to create new products, services or processes.)

Concerning risk and uncertainty bearing, according to Hozelist an entrepreneur performs the function of risk and uncertainty bearing. Every decision pertaining to development of new products, adapting new technologies, opening up new markets involves risk. Decision-making in an environment of uncertainty requires anticipation of risk. Profit is said to be the reward for anticipating and taking such risks. However it is pertinent to mention that the entrepreneur is not a gambler, he only takes calculated risks. An entrepreneur develops the art of decision-making under conditions of uncertainty as a matter of survival.

Finally, concerning organization building, an entrepreneur has to organize men, material and other resources. He has to perform the functions of planning, coordination and control. He has to use his leadership qualities to build a team, generate resources and solve problems. With his organizational skills an entrepreneur builds an enterprise from scratch, nurtures it and makes it grow. (Sethi, 2009)

There is a clear difference between entrepreneur and entrepreneurship. The term entrepreneur is used to describe men and women who establish and manage their own business. The process involved is called entrepreneurship. Entrepreneurship is an abstraction whereas entrepreneurs are tangible people. Entrepreneurship is a process and an entrepreneur is a person. Entrepreneurship is the outcome of complex socio-economic, psychological and other factors. Entrepreneur is the key individual central to entrepreneurship who makes things happen. Entrepreneur is the actor,

entrepreneurship is the act. Entrepreneurship is the most effective way of bridging the gap between science and the market place by creating new enterprises. An entrepreneur is the catalyst who brings about this change.

2.3. Innovation as a Main Source of Entrepreneurship

Schumpeter (1936), the father of entrepreneurship theory, points out that entrepreneurship is the way to innovation. Similarly, Hult, Snow and Kandemir (2003) points out that the concept of innovation is closely connected to entrepreneurship. Stevenson and Gumpert (1985) further indicate that innovation is the “heart of entrepreneurship”. Therefore, entrepreneurship is viewed as a prime source of innovation and competitive advantage.

The terms entrepreneurship and innovation are often used interchangeably, but this is misleading. Innovation is often the basis on which an entrepreneurial business is built because of the competitive advantage it provides. On the other hand, the act of entrepreneurship is only one way of bringing an innovation to the marketplace. Technology entrepreneurs often choose to build a startup company around a technological innovation. This will provide financial and skill-based resources that will exploit the opportunity to develop and commercialize the innovation. Once the entrepreneur has established an organization, the focus shifts toward its sustainability, and the best way that this can be achieved is through organizational innovation. However, innovation can be brought to market by means other than entrepreneurial startups; it can also be exploited through established organizations and strategic alliances between organizations. (O'Sullivan, 2008)

In the Schumpeterian tradition, the entrepreneur is the hero of dynamic capitalism. The entrepreneur typically creates new combinations: new products, new markets, new materials, and new forms of organization (Schumpeter 1934). Entrepreneurship and innovation are almost synonymous.

The entrepreneurship literature has long been recognized as a potential means to maintain and promote business competitive advantages (Coven & Miles, 1999; Hult, Snow & Kandemir, 2003; Schoollhamer, 1982; Yamada, J, 2004). Literatures indicate that managers or entrepreneurs are often been viewed as the key components in the entrepreneurship theory and models of the entrepreneurial process (Coven &

Slevin, 1991). Stevenson and Gumpert (1985) state that entrepreneurship is the trait that some people or organizations possess but some do not. Entrepreneurs' personal traits have been widely discussed in explaining entrepreneurship, including creativity, innovativeness, risk taking, and proactivity (Coven & Slevin, 1991; Yamada, 2004). Moreover, entrepreneurial organizations are those that can actively respond to competitors and are often the first-to-market with product innovation (Coven & Slevin, 1991).

2.4. Entrepreneurship and Economic Development

Entrepreneurship plays an important role in the economic growth and development of a nation. It is a purposeful activity that includes initiation, promotion and distribution of wealth and service. Entrepreneurship is basically concerned with creating wealth through production of goods and services. This results in a process of upward change whereby the real per capita income of a country rises overtime or in other words economic development takes place. Thus, entrepreneurial development is the key to economic development.

In this context, the industrial health of a society depends on the level of entrepreneurship existing in it. A country might remain backward not because of lack of natural resources or dearth of capital (as it is many times believed) but because of lack of entrepreneurial talents or its inability to tap the latent entrepreneurial talents existing in that society. Thus, an entrepreneur is a critical factor in economic development and an integral part of the socio-economic transformation. Entrepreneurs historically have altered the direction of national economies, industry or markets- Japan, Singapore, Korea, Taiwan to name a few.

Joseph Schumpeter's contribution to understanding of the mechanisms of technological progress and economic development is widely recognized. In *The Theory of Economic Development* (1934), "he emphasizes the role of the entrepreneur as prime cause of economic development. He describes how the innovating entrepreneur challenges incumbent firms by introducing new inventions that make current technologies and products obsolete. This process of creative destruction is the main characteristic of what has been called the Schumpeter Mark Regime." In *Capitalism, Socialism and Democracy* (1950), Schumpeter focuses on innovative activities of large and established firms. "He describes how large firms

outperform their smaller counterparts in the innovation and appropriation process through a strong positive feedback loop from innovation to increased R&D activities. This process of creative accumulation is the main characteristic of the Schumpeter Mark II regime. Industries experiencing a Schumpeter Mark II regime are likely to develop a concentrated market structure, in contrast to industries in a Schumpeter Mark I regime, where small firms proliferate.”

3. DRIVERS OF INNOVATION AND ENTREPRENEURSHIP

In various pieces of work, the interdependencies of entrepreneurship and innovation have been linked. The 2001 OECD Growth Study identified entrepreneurship and innovation as two of the four microeconomic drivers of economic growth in the knowledge-based economy (the other two being human capital and ICT). Hoffman (2005) identifies entrepreneurship as one of the four drivers of innovation, together with human resources, knowledge building and sharing, and ICT. Gabr and Hoffman (2006) propose there are five drivers of entrepreneurship: opportunity, abilities, capital, incentives, and culture, each one influenced by a comprehensive list of policy instruments. From this, they have developed a general policy framework of the growth drivers of entrepreneurship, which they define more in terms of innovative (high growth) entrepreneurship rather than small business. In the view of Arundel and Hollanders (2005), entrepreneurship is possibly one of the most important drivers of innovation, yet one of the most difficult to measure because it involves attitudes to risk, opportunities that reduce risk, receptiveness to new ideas, and access to capital.

3.1. Economic Growth Drivers

- I. Innovation
- II. Entrepreneurship
- III. Human Capital
- IV. Information and Communication Technology (ICT)

3.1.1. Innovation and Economic Growth

Innovation is a major driver of economic growth. Innovation influences growth at both the microeconomic and macroeconomics levels. At the microeconomic level, innovation enables firms to respond more sophisticated consumer demand and stay ahead of their competitors both domestically and internationally. Innovation is also important in the service sector, although innovation in services appear to draw less on formal R&D than is the case in manufacturing. Service sector firms are making greater use of new technology, especially ICT, in their work processes and service offerings (CSTB, 2000)

At the macroeconomic level, innovation contributes to the three drivers of output growth: capital, labour and MFP. Countries that registered above-average growth performance in the 1990s generally drew more people into employment: accumulated more capital improved the quality of their workforces; and, in many cases, improved MFP (OECD, 2000g). The contribution of innovation to MFP growth has long been recognised: increased MFP reflects greater overall efficiency in the use of labor and capital and is driven by technological and non-technological innovation-improved management practices, organisational changes, and improved ways of producing goods and services in response to evolving consumer and societal needs. However, innovation also creates new products that became part of the capital stock used by firms in generating their own economics output. ICTs, which have been the most dynamic component of business investment and have made significant contributions to economic growth in many fast growing economies (OECD, 2001p) have experienced extremely high rates of technological innovation in the past decade. Similarly improvements in the quality of the workforce are often a response to the needs of firms that were innovative in the development and/or adoption of new technologies.

The importance of innovation in driving growth can be seen in comparisons of various indicators of innovation's contribution to growth rates. Countries that experienced accelerated rates of growth in MFP between the 1980s and 1990s (Australia, Canada, Denmark, Finland, Ireland, New Zealand, Norway, Sweden, the United States) tended to have above-average rates of growth in patenting. This held true even for the United States, which had a high patenting rate even at the beginning of the 1990s and might have been expected to face greater difficulties in increasing its rate of patenting and its rate of growth. Of course, patents do not measure innovation directly, but by sampling an important fraction of inventive activity they can provide useful insight into innovative performance. The growing rate of patenting and the rising share of high-technology goods in trade among OECD countries further suggest that innovation plays an increasingly important role in economic growth.

Arguably, a country's innovative capacity is more important to its economic growth-and to its ability to sustain growth over the long term-than is any particular

technological breakthrough or industrial sector. While development and adoption of ICT appears to have been a key driver of growth in the 1990s, other technologies-biotechnology, nanotechnology, or something entirely different-may create new industries and reinvigorate established industries in the future. Countries that experience the highest levels of growth are likely to be those that can most rapidly develop new products, processes and services based on these new technologies and apply them most efficiently to other sectors of the economy. Radical innovation by a few organisations, together with incremental technological and organisational innovation by an increasingly large number of firms and working teams, will therefore remain essential to ensuring the sustainability of economic growth over the long term. It will also be important for ensuring sustainable economic growth-that is, growth that preserves the environment and natural resources-and to a host of other social objectives, such as improved health (OECD, 2001b, 2000f)

3.1.2. Entrepreneurship and Economic Growth

Entrepreneurs create new businesses, and new businesses in turn create jobs, intensify competition, and may even increase productivity through technological change. High measured levels of entrepreneurship will thus translate directly into high levels of economic growth. (Acs, 2006)

In early studies Schumpeter (1911) clearly stated that entrepreneur act as an innovator it is most important way of economic development in a society. Joseph Schumpeter, is the pioneer who creates the major relationship between entrepreneurship and economic growth. (Schumpeter, 1934) Entrepreneurship and innovation is a key of economic growth, and there is strong relationship between entrepreneurial activity and economic development across the border. Economic growth, modern technology and innovation are the three independent variables relates to an entrepreneurship.

Economic growth have generally been controlled to the area of macro economics (Romer, 1990; Krugman, 1991). Entrepreneurs introduce innovative products and production process and enter into the market; this way of entrepreneurial activity may effect the economic growth. (Acs and Audretsch, 1990 and 2003). In early studies Schumpeter (1911) conceptually stated that “entrepreneur act as an innovator” it was key step moving towards economic development.

Entrepreneurship is the magnificent ability and willingness of an entrepreneur, within and outside the existing organizations to identify and create new economic opportunities like new products, new production methods, and new product-market combination and to introduce their innovative ideas into the market (Wennekers and Thurik, 1999). Creating and introducing new economic opportunities and the competitive scope of entrepreneurship need more attention, the major contribution of the entrepreneurship to economic growth might be its uniqueness (Baumol 1993, p.198). While entrepreneurship and innovation are a key of economic growth, researchers are yet to document a strong relationship between entrepreneurial activity and economic development across nations [(Acs and Audretsch, 2005), Van Stel et al.(2005)].

3.1.3. Information and Communication Technology (ICT) and Economic Growth

The analysis of the effects of ICT on economic growth has gained an increased interest. While earlier studies have found little evidence about a link between ICT and productivity growth, more recent studies point to a positive effect of ICT investment on GDP growth (Oliner and Sichel, 2000; Daveri, 2001, Roeger, 2001; van Ark, 2001; Pilat and Lee, 2001; OECD, 2001). ICT have become a general purpose technology in developed economies (Carlsson, 2004) and they play a central role in the transition to the knowledge based economy (“the digital economy”). While early research found ICT producing industries to be an important factor of economic growth, more recent research found a significant contribution to economic growth from ICT using industries. Carlsson (2004) and Hollestein (2004) find evidence suggesting that ICT had a positive effect on economic growth via new products and services and new organisation methods.

The use of ICT is perceived as a catalyst for economic growth. ICT is defined as a set of activities that facilitate by electronic means the processing, transmission and display of information (Estavillo, 2004). Thus, it is important to know how the effectiveness of such a process has an impact on a nation’s economy. Typical ICT components include hardware, software and telecommunication equipment (Kaiser, 2004). ICT capital is superior to Non-ICT capital in enhancing economic growth: a higher level of ICT capital stock per capita allows a typical economy to achieve a higher growth rate for given levels of growth in labor and capital inputs (Vu, 2004).

With respect to Khuong Vu's view, it is also possible to say that sometimes it may not be how much capital you invest, that makes a difference, but rather how you invest it.

In the last three decades, numerous studies have been undertaken to examine the impact of ICT on a country's economic performance, fuelled largely by Robert Solow's (1957) seminal work. Several studies have examined the contribution of ICT to economic development of developing countries in recent years. The issue of ICT and economic growth has received much attention with respect to the developed countries as opposed to the developing countries. John et al. (2006, p.51), highlighted that ICT enhances economic growth of developing countries by way of:

- Providing cheaper, quality, and empowered communication to marginalized communities.
- Reduce inequalities in terms of access to education, training and employment
- Provision of easier access to information and wider market reach to firms (by way of cost reduction).
- Reduction in government bureaucracy via the electronic government service system.
- Fostering closer collaboration and interaction between various stakeholders in a country.

The benefits of ICT are not limited to the above-mentioned only. There are other benefits as well.

3.1.3.1. How the use of ICT contributes to the economy?

Economic growth is the increasing ability of a nation to produce more goods and services (Miles, 2001). The use of ICT therefore enables the production of goods in a short amount of time with the assistance of computerised systems. Services are also provided more efficiently and rapidly.

Growth can occur in two different ways; the increased use of land, labour, capital and entrepreneurial resources by using better technology or management techniques and increased productivity of existing resource use through rising labour and capital productivity (Miles, 2001). This advocates further the impact of ICT in contributing

to economic growth that occurs as a result of a country's development partially assisted by the use of technology. What we mean by technology, is the development and application of tools, machines, materials and processes that help to solve human problems (Wikipedia, 2004).

Economic growth is also closely linked with the distances we are able to travel, thus the further people are, on average, able to travel, the greater the economic activity and the wealth of the society (Lake, 2004). According to Lake, the increasing use of information and communication technologies (ICT) is changing the nature of this linkage with the use of virtual mobility that renders the distance less important, but insists that the connection with mobility remains. If consumers spend less on transportation, they would save money, which could be added to their disposable income. *“Increasingly ICT are becoming pivotal for economic growth. By enabling “virtual mobility”, ICT provide the means to undertake many of the activities that have so far needed physical transport”* (Lake, 2004). In support of Lake's view, it is also true to say that the use of email, online banking and e-commerce have significantly cut down on the physical transportation involved in sending mail, banking and buying goods, which as a result save money.

Economic growth theories predict that economic growth is driven on investment in ICT. However, empirical studies of this prediction have produced mixed results, depending on the research methodology employed and the geographical configuration considered. Early macro level studies, going back to late 1980s and early 1990s, indicated that ICT's share in productivity and economic growth was very small (Roach, 1987, 1989, 1991; Oliner and Sichel, 1994; Jorgenson and Stiroh, 1995). However, later macroeconomic studies showed that investments in ICT had a considerable effect on the productivity of labor force and on economic growth (Jorgenson, 2001, Oliner and Sichel, 2004, Jorgenson and Stiroh, 2000). Gordon (2000) attributes productivity growth of the 1995-2000 period to business cycles, whereas Stiroh (2001) and some others show that business cycles had little influence on productivity growth during those years. Results sometimes diverge due to different methodologies employed. For example, Jorgenson and Stiroh (1995, 2000), Jorgenson (2000), and also Oliner and Sichel (1994, 2000) use a “growth accounting

framework” in which they separate ICT capital from non-IT capital, and focus mainly on business cycles.

Sotiris and Papaioannou (2004) explored the effects of ICT on productivity and economic growth in both developing and developed countries over the time period of 1993-2001, using a “production function” framework and foreign direct investment (FDI) as a proxy for ICT and concluded that FDI has a positive and meaningful effect on productivity and economic growth and that the effect was greater in developing countries, and positive but not meaningful when all the countries were lumped together. Dewan and Kraemer (2001) and Pahjola (2001) drawing data from more than 36 countries over different continents concluded that in more prosperous and industrial countries, there was a highly positive and meaningful relationship between ICT and economic growth, but there was no evidence of such a relationship in developing countries.

3.1.4. Human Capital and Economic Growth

Human capital analysis deals with acquired capabilities which are developed through formal and informal education at school and at home, and through training, experience, and mobility in the labor market. At the national level, human capital can be viewed as a factor of production coordinate with physical capital. This implies that its contribution to growth is greater the larger the volume of physical capital and vice versa. The framework of an aggregate production function shows also that the growth of human capital is both a condition and a consequence of economic growth. Human capital activities involve not merely the transmission and embodiment in people of available knowledge, but also the production of new knowledge which is the source of innovation and of technical change which propels all factors of production. This latter function of human capital generates worldwide economic growth regardless of its initial geographic locus. (Mincer, 1981)

There is a well-established theoretical literature on the effect of human capital on growth initiated by Becker (1964) and followed by the seminal papers of Nelson and Phelps (1966), Lucas (1988), Romer (1990) and Mankiw, Romer and Weil (1992). Two approaches can be distinguished in the theoretical literature. The first strand of literature focuses on the stock of human capital as an explanation of cross-country growth differentials as suggested by Nelson and Phelps (1966). The second approach

looks at human capital as an input factor in a production function as in Lucas (1988) and points to the accumulation of human capital as the main factor driving growth differentials among countries.

The theoretical literature indicates different channels through which human capital affects economic growth. Nelson and Phelps (1966) show that high levels of human capital facilitate the adoption of new technologies. In contrast to this view, Lucas (1988) focuses on skill acquisition as an input in an aggregate production function. Romer (1990) assumes that both the stock as well as the growth of human capital generate ideas for new designs and goods which in turn drive endogenously physical capital investment and growth.

3.2. Entrepreneurship Drivers

- I. Opportunity
- II. Capital
- III. Incentives
- IV. Culture
- V. Abilities

3.2.1. Opportunity and Entrepreneurship

The entrepreneurial process involves all the functions, activities and actions associated with the perception of opportunities and the creation of the organizations to pursue these opportunities (Bygrave & Hofer, 1991). In order to understand what promotes or inhibits entrepreneurial activity, it is important to understand how entrepreneurs construct credible opportunities and the role of perceptions in that process (Krueger, 2000). Some researchers (Kirzner, 1973; Kaish & Gilad, 1991; Douglas & Shepherd, 1999) argue that opportunity recognition is the cornerstone of entrepreneurship. Entrepreneurs often see opportunities where others do not, and envision future possibilities that others fail to recognize (Allinson, Chell, & Hayes, 2000).

An opportunity is defined as a future situation that the decisionmakers deem personally desirable and feasible (i.e., within their control and competence). The state of being "desirable" and "feasible" is subjective to the individual (Krueger,

1993). An opportunity is said to exist when a bundle of resources can be sold at a higher price than the cost to package and deliver this bundle (Shane & Venkataraman, 2000). Most entrepreneurs do not have problems generating ideas, as there are numerous sources of ideas of what they can sell, and evaluation is the key to differentiate an idea from an opportunity (Hills & Shrader, 1998). As such, it is important to understand how entrepreneurs evaluate the alternatives presented to them. We term this process as OE.

3.2.2. Capital and Entrepreneurship

Within the entrepreneurship literature, three main factors of capital have been recognized as essential elements of the entrepreneurial process: human, financial and social. In an entrepreneurial context, human capital consists of the skills, experience and education an entrepreneur brings to the venture, financial capital includes the debt or equity funds an entrepreneurs has available for venture start-up, and social capital encompasses family members, social networks, connections, etc. that may potentially be helpful resources in business establishment.

Since human capital is the most accessible form of capital interms of assistance strategies, small business development centers and universities allocate a great deal of time and funds to developing this form of capital through skills training, record-keeping, business plan assistance, etc. Many studies have been conducted to determine the impact of human capital factors, although they have not directly tied results to implications they may hold for future small business assistance strategies.

Many studies have been conducted to determine the impact of human capital factors on entrepreneurship. In particular, a major focus has been placed on industry experience and general human capital in detemining the success of entrepereneurs in firm foundation. The importance of education as a form of general human capital has been demonstrated in several studies. It has been found that higher education levels indicate an increased likelihood to participate in firm foundation and demonstrate a significant impact on the performance of the new venture. (Cooperetal; Robinson and Sexton; Bates; Reynolds 1997b; Reynolds et al, 2002). Although education as an indicator of human capital was shown to be relevant in start-up participation, previous work experience, was not shown to be a statistically significant factor in

predicting participation in a start-up or in predicting start-up success. (Davidsson and Honig, 2000)

3.2.3. Incentives and Entrepreneurship

Incentive policy is one of the most basic and general policy and constitutes an important place in the formation of an entrepreneurial culture. Because entrepreneurship is the process of ideas into commercial behavior, individuals should be encouraged to formation of ideas in their minds of thoughts to direct them entrepreneurial activity and encouraged to convert these consisting ideas into behaviors. Incentive policies creates awareness of entrepreneurship on individuals and aims to exclude individuals who previously pursued the usual way so incentive policies is a policy which tries to change individuals' structure of thought. (Lundström ve Stevenson, 2005). Incentives include to direct individuals for entrepreneurial behaviors by creating a culture of entrepreneurship and to introduce entrepreneurs as a model in other words to create awareness in the field of entrepreneurship.

As presented in details in Figure 1, Lundström and Stevenson (2005), proposes five different policy to achieve the objectives of incentives.

- 1) To support television programs and advertising campaigns,
- 2) Entrepreneurship reward programs,
- 3) People who can be an example of encouragement of entrepreneurship in written publication,
- 4) To sponsor regional events and conferences on international entrepreneurship,
- 5) To use radio, printed media and web networks for issues related to entrepreneurship,

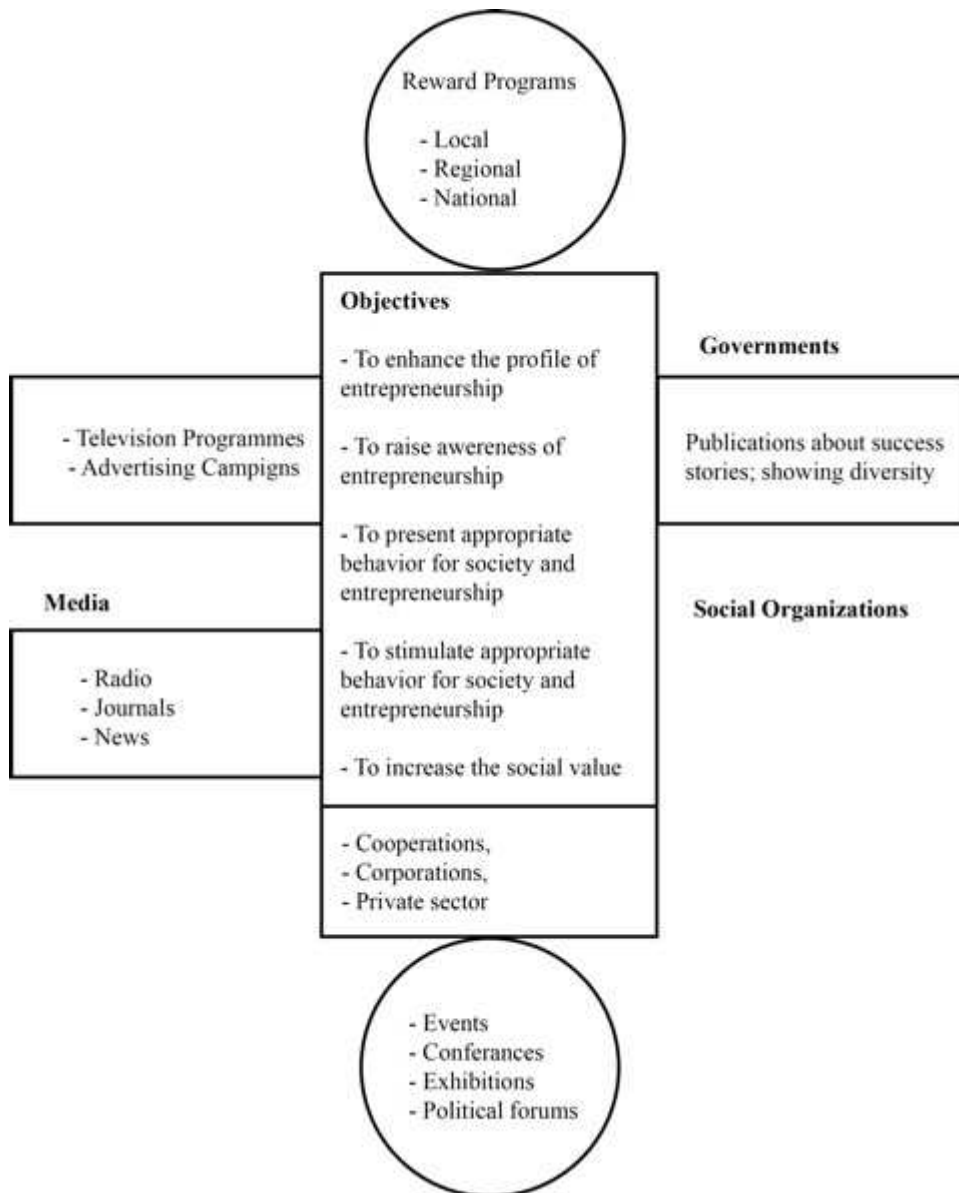


Figure 1: The Policy Structure for Encouragement of Entrepreneurship

Source: Lundström ve Stevenson (2005, p. 65.)

Entrepreneurship becomes more important than ever in the European Union. Industrial policies which are directly related to entrepreneurship, competitive power in high-tech manufacturing, small and innovative businesses which create employment are seen as the key elements of the EU Lisbon strategy.

In this context, one of the four basic components of the European Employment Strategy is the development of entrepreneurship and job creation.

The establishment of new enterprises and the development of existing SMEs, providing training opportunities for young people, facilitating their access to finance for new businesses and in particular supporting venture capital funds at member states are subjects which highlighted importance.

3.2.3.1. Objectives of Policies for Encouraging the Entrepreneurship

Today, most of the states are taking some measures to protect and support entrepreneurship. In fact, one of the main conditions of the market economy is entrepreneurial freedom, in other words freedom of market entry and market exit. It is aimed to establish a more equitable structure for market conditions and to increase performance of small businesses and their competitiveness by reducing administrative conditions and obligations to be complied with.

Entrepreneurship is primarily encouraged due to its contribution to job creation and to growth. Today, most of new jobs being created by new and small firms than large firms and this trend is becoming stronger. Countries that have a greater increase in entrepreneurship rates also tend to show greater declines in unemployment rates. During the 1990s, fast-growing companies have made significant contributions to the creation of employment. GDP growth even influenced by many other factors, researches show that entrepreneurship has positive contribution to the economic growth. Entrepreneurship contributes to strengthen the social and economic cohesion in undeveloped regions, the revival of economic activities and the job creation or the integration of people with disabilities to working life.

Secondly, entrepreneurship is encouraged due to its contribution for providing the competitive environment. The establishment of a new company and new initiatives to redirect the existing firm (for example; after transferring of business to someone else) increase the efficiency. Such these initiatives are forcing other firms to improve their efficiency of activities or to follow innovations by increasing the competitive pressure. Firms' increasing effectiveness and their innovations increase the competitiveness of the economy as a whole. This process provides benefit to consumers with more choices and with lower prices.

Thirdly, entrepreneurship is encouraged due to for giving people opportunity to realize their potential. Working is not just a way of making money. There are also

some other criteria that play role in selecting profession and job such as security, independence, diversity of the work done, interest to job. To be an entrepreneur provides people an opportunity to create a better position for them.

3.2.3.2. Tools of Policies for Encouraging the Entrepreneurship

P. Reynolds recommends three methods to encourage entrepreneurship: The first method is to prepare the appropriate framework conditions. To make institutional arrangements that economic activity will take place in is the main factor. Structural policies are needed to create a stable macroeconomic environment and well-functioning market organization for entrepreneurship.

The second way is to encourage cultural attitudes that support entrepreneurship. A country's cultural factors affect the country's level of entrepreneurship. In collaborative cultures the entrepreneurship is improving more comfortable and positive attitudes can be developed for entrepreneurship thanks to education.

Thirdly, a well-designed government programs are effective in encouraging the entrepreneurship. Measures taken by governments to encourage and to stimulate entrepreneurship can be collected mainly under the following headings:

- First of all, should be provided to recognize successful entrepreneurs from the masses by creating an entrepreneurial culture and to encourage potential entrepreneurs from successful entrepreneurs' achievements.
- Secondly, some specific target groups can be identified such as young entrepreneurs, women, unemployed people and the development of strategies for these groups should be provided.
- Thirdly, should be provided to be given entrepreneurship education by training programs, courses and seminars.
- Fourthly, should be provided to remove barriers to market entry in administrative and judicial areas and to simplify the process of business establishment.
- Fifth, should be provided to be given consulting during the establishment process to those who start a new job and to be given business planning services.

- Finally, should be provided to have access to different sources of equity financing by entrepreneurs such as business angels and the field of venture capital funding.

3.2.4. Culture and Entrepreneurship

Culture is may affect entrepreneurship through individual orientations and higher-level institutions. The influence of culture on entrepreneurship was first emphasized by Max Weber at the beginning of twenty century.

3.2.4.1. Definition of Culture

Kroeber and Parsons (1958) define culture as “patterns of values, ideas and other symbolic-meaningful systems as factors in the shaping of human behavior”. Barnouw (1979) defines culture as configurations of “stereotyped patterns of learned behavior which are handed down from one generation to the next”. Hofstede (1980, p.25) refers to culture as “the collective programming of the mind which distinguishes the members of one human group from another and includes systems and values”. Since values are typically determined early in life (Barnouw, 1979; Hofstede, 1980) they tend to be “programmed” into individuals resulting in behavior patterns consistent with the cultural context and enduring over time (Hofstede, 1980; Mueller and Thomas, 2000).

Culture is greatly influenced by religion since religion determines a person’s basic values and beliefs. Hofstede (1991), on the other hand, argues that religion alone does not shape culture. Hofstede (1991) defines culture as “a collective programming of the mind which distinguishes the members of one group or category of people from another”. In other words, he regards culture as a collective phenomenon that is shaped by individuals’ social environment, not their genes. Cultural differences are the result of national, regional, ethnic, social class, religious, gender, and language variations. Values are held to be a critical feature of culture and cultural distinctiveness.

Hofstede identified four value-oriented dimensions of culture that may be used to describe and explain aspects of behavior in various cultural groups. These

dimensions are: (1) power distance, (2) uncertainty avoidance, (3) individualism, and, (3) masculinity (Russell, 2004).

Power distance is a general measure of the degree of interpersonal influence that those who hold power in social structure can exert over those who lack power. According to Hofstede, the power distance is the difference between the extents to which a superior in a social hierarchy can determine the behavior of a subordinate compared to the extent that the subordinate can determine the behavior of the superior.

Uncertainty avoidance may be thought to be derived from the thinking that time's arrow is aimed inextricably into the future and does not permit reliable forecasts concerning its targets. Uncertainty avoidance becomes a measure that indicates a group's level of anxiety regarding future events. It evaluates the degree of tolerance within a culture for the ambiguity that is inherent in a continuously unfolding future.

The third cultural factor cited by Hofstede is *individualism*. This is a measure that indicates the degree to which individual identity and self-concept are linked to collective groups within society.

Hofstede's final cultural dimension is *masculinity*. The masculinity measure evaluates the general tendency to act either assertively (masculine) or in a nurturing manner (feminine). In high masculinity societies, individuals tend to set high performance standards and act forcefully to achieve these standards.

3.2.4.2. Cultural Determinants of Level of Entrepreneurship

Though the economic factors influencing level of entrepreneurship are clearly important, there remains a high level of unexplained variation across countries when only economic variables are taken into account. Thus, more recently, researchers have also looked towards cultural factors to explain this variation.

Since extensive research at the psychological level shows a link between values, beliefs and behavior, it is plausible that differences in national culture, in which these values and beliefs are embedded, may influence a wide range of behaviors including the decision to become self-employed rather than to work for others (Mueller and Thomas, 2000). Using this logic, several past studies explore the relationship

between various aspects of culture and entrepreneurial behavior across cultures (Busenitz, Gomez and Spencer, 2000; Davidsson, 1995; Huisman, 1985; Lee and Petersen, 2000; McGrath and MacMillan, 1992; Mueller and Thomas, 2000; Tiessen, 1997; Uhlaner, Thurik and Hutjes, 2002; Wennekers et al., 2001).

3.2.4.3. Implications to Entrepreneurship

It is said that in the economic mythology of the industrialized West, the entrepreneur is seen as an independent, risk-taking maverick who boldly organizes the people and resources necessary for creating new business ventures. For such a role to emerge within a culture, at least two social conditions must exist: (1) entrepreneurs must be granted social acceptance so that the activities associated with new venture formation are accepted as legitimate and socially beneficial, and, (2) entrepreneurs must be able to gain access to and control of financial, material and educational resources necessary to initiate new ventures. Condition one requires that the entrepreneurial role be validated by a set of cultural values that recognizes the legitimacy of the entrepreneurial function; condition two requires social institutions and procedures that provide potential entrepreneurs access to necessary resources (Russell, 2004).

The general consequence of low power distance is greater access to resources and entrepreneurial opportunities restricted opportunities – more entrepreneurial initiatives. High power distance makes access to resources and entrepreneurial opportunities restricted hence fewer entrepreneurs emerge. The research of modern day entrepreneurship owes a lot to Joseph Alois Schumpeter's contributions. He was probably the first scholar to develop its theories. In the Schumpeterian model, entrepreneurs are instruments for introducing innovative change into the economy - they are agents that instigate "creative destruction" in static economies, sweeping away obsolete products and processes through the introduction of innovation. Entrepreneurship in the Schumpeterian sense always involves high degrees of uncertainty, which is inherent in the processes of initiating, developing and commercializing innovation (Van den Ven, 1986).

Entrepreneurs and organizations involved in developing innovations require a high tolerance for ambiguity and a willingness to take risks. These are necessary

characteristics for innovative entrepreneurs and members of entrepreneurial organizations, enabling them to navigate the risky and highly uncertain waters of new venture development. Low uncertainty has the consequence of increased willingness to take risks - increased scope for individual initiative – more initiation of entrepreneurial ventures. High uncertainty leads to general avoidance of risk – taking and to fewer individual entrepreneurial initiatives begun.

Hofstede's third cultural dimension – individualism is said to be prevalent in the West where activities of the entrepreneur are largely individualistic. Entrepreneurs are often portrayed as mavericks who, rejecting the common view, overcome all opposition to persevere in realizing their own unique vision.

Individualistic cultures prize individual initiative and autonomy. Loyalty to organizations is relatively low, taking a back seat to individual interests. As a consequence, independent entrepreneurial behavior is valued and supported by social norms as a means of achieving personal goals. As a result, many individuals are likely to be attracted to entrepreneurship as a means of seeking their individual fortune.

Low individualism has the consequence of fewer individual entrepreneurs and fewer entrepreneurial ventures emerging. High individualism leads to individual entrepreneurial activities valued resulting in more entrepreneurs and entrepreneurial ventures. Hofstede's final cultural dimension is masculinity. Its relation to entrepreneurship would seem to be through the assertiveness and high need for achievement characteristic of "masculine" cultures. In fact, McClelland (1961) claims to have found a strong correlation between need for achievement and the level of entrepreneurial activity within a society. In masculine societies, the material success achieved through successful entrepreneurial ventures is valued and entrepreneurs who attain such success are recognized and esteemed. Conversely, in relatively feminine cultures, achievement motivation, at least in the material sense, is relatively weak and success is defined in terms of pleasant human relationships. Consequently, it is presumed that more individuals will be attracted to entrepreneurship as a means of achieving material benefits and social position in masculine cultures while there will be less interest in entrepreneurial activities in feminine cultures.

Low masculinity leads to less interest in entrepreneurship as a source of achievement and wealth while high masculinity leads to greater focus on entrepreneurship as a source of achievement and wealth.

3.2.4.4. Views regarding the relationship between cultural values and entrepreneurial behaviour

Davidsson (1995) identifies two overall views regarding the relationship between cultural values and entrepreneurial behaviour. The first, the aggregate psychological trait explanation for entrepreneurship, is based on the idea that if a society contains more people with entrepreneurial values, more people will be entrepreneurs. Davidsson notes that this is essentially the perspective taken by McClelland (1961) and other proponents of the individualistic view of culture. Davidsson also identifies a second view, first set forth by Etzioni (1987), referred to as social legitimacy. This latter view assumes that variation in entrepreneurship is based upon differences in values and beliefs between the population as a whole and potential entrepreneurs. It is precisely the clash of values between the groups and that drives potential entrepreneurs away from the average organization and into self-employment (Wennekers et al., 2001).

3.2.5. Abilities and Entrepreneurship

In addition to having the personal attributes, behaviours and values associated with being enterprising, entrepreneurs and social entrepreneurs also need a range of skills to successfully start-up, develop, manage and grow their business or organisation. Many of these skills are also required by intrapreneurs to be effective change agents within organisations and businesses.

Entrepreneurship is the ability to create and build something from practically nothing. It is initiating, doing, achieving and building an enterprise or organisation, rather than just watching, analysing or describing one. It is the ability to build a founding team to complement your own skills and talents. It is the know-how to find, marshal and control resources and to make sure you don't run out of money when you need it most. Finally, it is the willingness to take calculated risks, both personal and financial, and then to do everything possible to get the odds in your favour. (Timmons, 1989).

Entrepreneurs start, develop, and then run their own businesses. They could be scientists or salespeople, athletes or accountants, but they must all be business people. Here are the key business skills needed by entrepreneurs.¹

- ✓ Evaluating information. Business owners must be able to determine whether the information received from other people and sources is true or false, useful or unimportant.
- ✓ Decision making. It is important to have a plan for deciding what action to take in important situations.
- ✓ Business communication. Effective communication results from writing and speaking in ways that are understandable and persuasive.
- ✓ Good listening skills. Hearing and listening are not necessarily the same. When we hear, we use our ears. When we listen we use our ears and our minds. Good listeners will learn things that will help them improve their business.
- ✓ Problem solving. The business world is full of big and small problems. The ability to solve problems has great value.
- ✓ Leadership. When you own or run a business, the employees look to you for leadership.
- ✓ Teamwork. Employees enjoy working together, but it is not always easy. Teamwork skills are very important to any company.
- ✓ Ethical behavior. The character and integrity projected in the workplace are what customers see. These can make or break a business.
- ✓ Mathematics. Business includes a lot of numbers. A good understanding of math is essential; for example, figuring wages and discounts.
- ✓ A will to learn. Learning continues on a daily basis in the business world. There should be a desire to learn more.

¹ Career Readiness Skills. *Interests, Attitudes and Abilities*. McGrawHill, Technology Interactions, Retrieved March 10, 2013 from <http://www.uidaho.edu/~media/Files/orgs/CALS/Department/AEE/Curriculum/Curriculum%20guides/400%20and%20above/410/Unit%206/601%20CareerReadiness.ashx>

3.3. Innovation Drivers

- I. Information and Communication Technology (ICT)
- II. Human Resources
- III. Entrepreneurship
- IV. Knowledge Building and Sharing

3.3.1. Information and Communication Technology and Innovation

Today, firms face a changing environment characterized by the rapid advance of globalization, the emergence of new competitors and diversification of demand. In this context, firms' innovative capabilities depend not only on firms' internal competencies, e.g. R&D activities, but also on their capacity to develop organizational strategy for managing their innovation process. In this context, the ICT use could be "a part of a larger system of technological and organizational changes that increased productivity over time" (Brynjolfsson and Hitt, 1997). Actually, the effects of R&D and ICT use on innovation and productivity constitute two separate well-established streams of literature.

The importance of ICT in promoting innovation and productivity is an issue that has attracted particular attention in recent innovation studies. Theoretical studies on the economic role of ICT are in general presented from two arguments: strategic management and cost reduction. The ICT use could change the optimal structure of the organization by enabling complementary organizational investments such as business processes and work practices and thus allow firms to be flexible and adaptive (Bresnahan et al., 2002). According to these studies, ICT use may allow firm to access to complementary or new competencies developed elsewhere while concentrate in developing their specific internal ones, to roll out (new) products and to manage knowledge flows within and between firms (Brynjolfsson and Hitt, 2000; Kogut and Zander, 1993; Nelson and Winter, 1982). Implementing these investments could, in turn, result in substantial improvements in productivity by reducing costs and in improvements in organizational flexibility and intangible aspects of existing products like convenience, timeliness, quality and variety (Brynjolfsson and Hitt, 1997).

Numerous studies have also investigated the complementarity between organizational innovation and ICT by highlighting the importance of technological change as a driver of organizational changes within the firm (Henderson and Clark, 1990; Danneels, 2002). These studies have focused on the fact that ICT usually conduces to new methods or ways of organizing firms. Firms introducing ICT would be constrained to reorganize their production, workforce, sale and distribution systems.

3.3.2. Human Resources and Innovation

The concept of human capital pertains to individuals' knowledge and abilities that allow for changes in action and economic growth (Coleman 1988). Human capital may be developed through formal training and education aimed at updating and renewing one's capabilities in order to do well in society.

Human Capital emanates from the fundamental assumption that humans possess skills and abilities than can be improved, and as such can change the way in which people act (Becker, 1964). Human Capital is said to be embodied in the skills, knowledge and expertise that people have; it has been seen as an important source of competitive advantage to individuals, organizations and societies (Coleman 1988, Gimeno et al. 1997). The relationship between human capital and innovation at the country level is grounded in what Bourdieu (1986) termed as "conversions", that is different forms of capital can be converted into resources and other forms of economic payoff. Innovation, as a knowledge-intensive activity, is expected to be related to human capital in multiple ways. Black and Lynch (1996) proposed that investment in human capital through on-the-job training and education are the driving force behind increases in productivity and competitiveness at the organizational level. Cannon (2000) argued that human capital raises overall productivity at the societal level as the human input to economic activity in terms of physical and intellectual effort increases. The overall growth in economic activity generates, then, higher needs for new processes and innovations to further support this growth

3.3.3. Entrepreneurship and Innovation

Entrepreneurship and innovation are closely linked. Much of entrepreneurial activity most assuredly involves innovation and likewise, entrepreneurs are critical to the innovation process. In addition, the turbulence (creative destruction) produced by a high rate of business entry and exit activity is in itself associated with higher levels of innovation in an economy. It is possible to observe convergence between innovation and entrepreneurship policy, particularly when the policy goal is to foster new high-growth innovative firms. (Dahlstrand and Stevenson, 2010)

3.3.4. Knowledge Building and Sharing and Innovation

Knowledge sharing creates opportunities to maximize organization ability to meet those needs and generates solutions and efficiencies that provide a business with a competitive advantage (Reid, 2003). KS can define as a social interaction culture, involving the exchange of employee knowledge, experiences, and skills through the whole department or organization. KS comprises a set of shared understandings related to providing employees access to relevant information and building and using knowledge networks within organizations (Hogel et al., 2003). Moreover, knowledge sharing occurs at the individual and organizational levels.

For individual employees, KS is talking to colleagues to help them get something done better, more quickly, or more efficiently. For an organization, KS is capturing, organizing, reusing, and transferring experience-based knowledge that resides within the organization and making that knowledge available to others in the business. A number of studies have demonstrated that knowledge sharing is essential because it enables organizations to enhance innovation performance and reduce redundant learning efforts (Calantone et al., 2002; Scarbrough, 2003).

A firm can successfully promote a knowledge sharing culture not only by directly incorporating knowledge in its business strategy, but also by changing employee attitudes and behaviors to promote willing and consistent KS (Connelly and Kelloway, 2003; Lin and Lee, 2004). Moreover, various studies focused on the relationship between knowledge sharing enablers and processes (Van den Hooff and Van Weenen, 2004a; Van den Hooff and VanWeenen, 2004b; Bock et al., 2005; Yeh et al., 2006), while others have focused on the relationship between knowledge

sharing enablers and innovation performance (Calantone et al., 2002; Syed-Ikhsan and Rowland, 2004). However, researchers and practitioners have not tried an integrative model that explores the effectiveness of knowledge sharing from a holistic perspective, and little empirical research has examined the relationships among knowledge sharing enablers, processes, and firm innovation capability.

KS is one of the most critical steps in knowledge management activities. KS is important to encourage workers to share their knowledge of best interests of the firms. Likewise, KS activities create opportunities for organizations to maximize ability to gain competition advantages (Baum and Ingran, 1998). Also, the encouragement of successfully knowledge sharing activities is very challenging. For firms to develop competitive advantage, sharing and accumulating knowledge becomes crucial (Husted and Michailova, 2002; Michailova and Husted, 2003). It has been suggested that knowledge sharing is essential for developing new technologies and products (Nonaka and Takeuchi, 1995). According to the literature, developing new technologies and products or organizations development leads to innovation capabilities that individual acquires existing knowledge and shares this knowledge within the organization. KS is important issue for companies to develop skills and competences which bring about innovation to occur when employee knowledge is shared in organization. Despite the increasing interests in organizational, KS data are not sufficient (Choi and Lee, 2003).

4. INCENTIVES INNOVATION AND ENTREPRENEURSHIP WITHIN EU CONTEXT

4.1. Lisbon Strategy

The Lisbon Strategy is also known as the Lisbon Agenda or Lisbon Process. This strategy was an action and development plan devised in 2000, for the economy of the European Union between 2000 and 2010. The Lisbon strategy is an EU programme which aims to improve the productivity and competitiveness of the EU economy (Webb, 2009).

4.1.1. Overview of Lisbon Strategy

The original Lisbon Strategy was launched in 2000 as a response to the challenges of globalisation and ageing. The European Council defined the objective of the strategy for the EU "*to become the most dynamic and competitive knowledge-based economy in the world by 2010 capable of sustainable economic growth with more and better jobs and greater social cohesion and respect for the environment*". Underlying this was the realisation that, in order to enhance its standard of living and sustain its unique social model, the EU needed to increase its productivity and competitiveness in the face of ever fiercer global competition, technological change and an ageing population. It was recognised that the reform agenda could not be pursued at EU level alone, but that since many of the policy areas involved Member State competences, close co-operation between the EU and Member States would be necessary to achieve results. It also reflected a first acknowledgement that Member States' economies are inherently linked, and that the action (or inaction) of one Member State could have significant consequences for the EU as a whole.

However, the original strategy gradually developed into an overly complex structure with multiple goals and actions and an unclear division of responsibilities and tasks, particularly between the EU and national levels. The Lisbon Strategy was therefore re-launched in 2005 following a mid-term review. In order to provide a greater sense of prioritisation, the relaunched strategy was focused on growth and jobs. A new governance structure based on a partnership approach between the Member States and the EU institutions was put into place. In assessing ten years of the Lisbon strategy, what ultimately counts is the impact on growth and jobs.

Assessing this impact, however, is not straightforward, as the economic cycle and external events, as well as public policies, play a determining role. Ultimately, the objective of the Lisbon strategy was to improve the pace and quality of reforms at national and European level: therefore the assessment needs also to consider whether the Strategy shaped reform agendas by forging greater consensus amongst stakeholders on challenges and policy responses.²

4.1.2. The Development of Lisbon Strategy

The Lisbon strategy has evolved since 2000. It was relaunched in 2005 to have a greater focus on economic growth and employment. The EU's response to the recent economic crisis also included accelerating the Lisbon strategy's reforms. (Kok, 2004)

4.1.2.1. The 2005 relaunch: a focus on jobs and growth

A mid-term review of the Lisbon strategy was carried out by a group chaired by Wim Kok, former Prime Minister of the Netherlands. It reported in November 2004 and made a number of recommendations, including a greater emphasis on jobs and growth. The strategy was relaunched in 2005. The mid-term review held in 2005, showed that the indicators used in the OMC³ had caused the objectives to become muddled and that the results achieved had been unconvincing. EU leaders decided to relaunch the Lisbon Strategy, focusing on two main priorities: economic growth and jobs. (Webb, 2009)

4.1.2.2. The mid-term review; "Lisbon Agenda 2005"

On the second of February 2005, the European Council had a meeting concerning the process of the Lisbon Agenda. The Commission concluded that the expected results had not been fulfilled. Some of it can be explained by external events but far from all. The European economy had not reached the wanted level in terms of productivity, growth, or employment, and the creation rate of new jobs was slowing

² European Commission (2010). *Lisbon Strategy Evaluation Document by Commission Staff*. Brussels: European Commission, Retrieved May 4, 2013 from http://ec.europa.eu/europe2020/pdf/lisbon_strategy_evaluation_en.pdf

³ OMC – Open Method of Coordination – an intergovernmental method of “soft coordination” by which member states are evaluated by one another, with the commission's role being one of surveillance.

down. Nor were the investments in R&D sufficient. The base for the evaluation of the first years was the Wim Kok report: “Facing the Challenge- The Lisbon Agenda for growth and employment”(2004). There are clear differences between the member states in their performance at approaching the Lisbon Agenda’s goals. Sweden, Finland, Denmark, and Ireland are generally among the best performing countries. Larger economies, however, such as Germany, France, and Italy are at the other side of the scale, and are showing the least progress (Rydeman & Törnell, 2005).

On the basis of this assessment and the proposals by the Commission, the European Council of March 2005 relaunched the Strategy by refocusing its priorities on economic growth and employment, while acknowledging the continuing relevance of the social and environmental pillars. The Strategy was thus refocused on promoting knowledge and innovation, making the EU an attractive area to invest and work in, fostering growth and employment based on social cohesion, and promoting sustainable development. (Kok, W. et al., 2004).

4.1.2.3. The Wim Kok Report

The “Kok Report” was an evaluation of the first five years of the Lisbon Agenda, and was commissioned by the Commission. The report points out several reasons behind the lack of results that the Lisbon Agenda has experienced. The main reasons were an overloaded agenda, poor co-ordination, conflicting priorities, and the lack of determined political action (Kok et al., 2004).

For the Lisbon Agenda to succeed and to meet the goals of employment, and growth all the member states must take action, and be engaged in the process. The Kok report argues that all the different parts of the Lisbon Agenda will have to be included in order to fulfil the goals; it is hard to reach higher growth, and employment by just one action. Urgent actions are therefore needed across several areas of policy:

- (i) the knowledge society; make R&D a top priority, increase the attractiveness of Europe for researchers, and scientists, and promote the use of ICTs,
- (ii) the internal market; complete the internal market, and create a single market for services,

- (iii) the business climate; reduce the administrative burden, create a more supportive business environment, where starts-up are easier, and the legislation have high quality,
- (iv) the labour market; develop strategies for lifelong learning, and active ageing, underpinning partnership for growth, and employment, and to fasten the process of recommendations of the European Employment taskforce, and
- (v) the environmental sustainability; spread eco-innovations, encourage policies that yield long-term sustained improvements in productivity through ecoefficiency (Kok et al., 2004).

The Kok report suggests that a new focus should be taken that includes more coherence between policies, and participations, improving the process for delivery by involving national parliaments, and social partners, and clearer communication on objectives, and achievements, which will make the member states more obliged to follow their responsibilities. The report further suggested a clearer separation of tasks among the participants. The Council should take the leading role in the Lisbon Agenda; the member states conduct national programmes with engaging commitments; The Commission should support the progress by policies, and actions, and reviews, reports, and facilitates the progress, the Parliament should take a proactive role in monitoring; and the social partners should take their responsibility in the Lisbon Agenda (Kok et al., 2004).

4.1.3. More research, development and innovation within Lisbon Strategy

The Lisbon Strategy's objective for the EU to become a knowledge economy centred on an ambitious research and innovation agenda. The introduction of a 3% EU GDP spending target for research and development (R&D) represented a step change in the importance and visibility of research and innovation policy at the EU level. There is evidence that many Member States have prioritised public R&D investments: in 20 Member States, the share of R&D in the total government budget increased between 2000 and 2007. However, disappointing performance of some Member States means that the EU overall performance has only marginally improved since 2000 (from 1.85% of GDP to 1.9% of GDP). Although the sum total of Member States' spending on R&D has not risen above 1.9% of GDP, still far

away from the 3% target, it is reassuring that spending levels have held up recently in spite of the crisis.

Since 2005, the EU policy approach has shifted towards more demand-side measures, valuing the role of non-technological innovation and a particular emphasis on joining up the three sides of the knowledge triangle. Initiatives such as the European Institute for Technology and Innovation (EIT) were launched, seeking to address the EU's persistent inability to "get innovation to market" and turn new ideas into productivity gains. Moreover, the EU has sought to use regulation and standardisation as tools to provide incentives and stimulate market demand for innovative products and services. Success in improving framework conditions has however been limited.⁴

In turn, work on the European Research Area represents a shift towards a more holistic policy approach, promoting greater co-operation between Member States and industry (e.g. through Joint Technology Initiatives which are public-private partnerships in key areas, European Research Infrastructures and Joint Programming), a stronger emphasis on excellence and smart specialisation and removal of obstacles to researchers' mobility. EU-level financing has played an increasingly prominent role in innovation policy under Lisbon. The European Investment Fund remains an important source of potential funding for innovation projects, while the European Commission and the EIB created the Risk-Sharing Finance Facility to help fund research and innovation projects. Although welcome, this recent increase in lending activity suggests that failing to make greater use of the off-budget financing instruments available at EU level was a major shortcoming of the Lisbon Strategy.

4.1.4. Research and Innovation and the Lisbon Strategy

Research and Innovation policy have been the cornerstones of the European Union (EU)'s Lisbon Strategy. This is true for the original Lisbon Strategy (Lisbon I) but even more so for Lisbon II. In Lisbon I, the European Council had stressed the importance of knowledge generation and its application for economic dynamics aimed at 'preparing the transition to a knowledge-based economy and society by

⁴ European Commission (2010). *Lisbon Strategy Evaluation Document by Commission Staff*. Brussels: European Commission, Retrieved May 4, 2013 from http://ec.europa.eu/europe2020/pdf/lisbon_strategy_evaluation_en.pdf

better policies for the information society and research and development (R&D), as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market' (Council of the European Union 2000b, highlights Jakob Edler). The perceived failure to improve the innovation performance in Europe (Kok, 2004) was one of the key motivations for the re-launch of Lisbon in 2005 (Lisbon II). In Lisbon II 'the support of knowledge and innovation in Europe' was the first out of eight high-level actions (including other goals such as the completion of the internal market for services, reform of state-aid rules, or the removal of mobility barriers) (European Commission, 2005d). Thus, the Lisbon strategy for research and innovation was foremost about improving the conditions and support mechanisms for knowledge creation and its application into innovation in the market across Europe. (Edler, 2012)

4.2. Investing for Excellence in Research, Innovation and Entrepreneurship

The economic welfare of European nations in today's highly competitive international market will greatly depend on the existence of industry that produces a high level of added value. Europe's welfare depends on longterm growth and hence sustained industrial competitiveness. This requires a strong foundation of innovation on which to build, and such a basis can only be developed through investment in research, development and innovation (RDI)⁵ and a pooling of resources and efforts at the European level. It is a widely accepted fact that there are considerable advantages in funding research at the EU level, mainly through economies of scale given that research becomes more efficient when it is undertaken on a larger scale. But there is much less consensus on how the funding should be allocated, and how much of the EU budget should be spent on RDI. The central funding mechanism at the EU level for basic and industrial research and innovation comes through the Framework Programmes, which started in 1984. Today we are at the Seventh Framework Programme (FP7) with a budget of just over €50 billion for the 2007–13 programming period. (Edler, 2012) This represents less than 5% of total government

⁵ RDI - is used throughout the report to refer to support going beyond basic research and development, funding in addition the stages before commercialisation – such as testing, demonstration and deployment – that the private sector is reluctant to support.

expenditure on research in the EU, but it can be significant in the specific areas in which it intervenes.

Public RDI expenditure in the member states also covers capital costs that the FP7 programme does not finance. In addition, it is important to point out that the cohesion policy invests an amount equivalent to the FP7 programme on research and innovation, albeit with a different focus, namely developing capacity, promoting innovation through the integration of key enabling technologies and fostering collaboration between businesses and industries. Up to FP6, the main aim was to facilitate collaboration among research centres and expand economies of scale in research and development, rather than promote concerted action to reach specific objectives.

Today the EU's RDI policies increasingly seek to foster the competitiveness of European industry, leveraging private investment in RDI and progressively assisting demonstration, deployment and commercialisation. This is particularly striking for energy, where the RDI policy has transformed into a 'mission-oriented' policy. This new central relevance of RDI has allowed the budget to increase in size and enabled this formerly loose policy to take centre stage and develop into a fully-fledged EU policy. The Europe 2020 strategy by the European Commission again calls for a substantial increase in RDI expenditure and coordination in the EU. This is reflected in the proposals for the EU budget, which call for a rise in funding for the successor Horizon 2020 programme. The budget proposals bring together under one financial heading the FP7, the entrepreneurship and innovation part of the existing CIP and funding for the European Institute for Innovation and Technology, in a single programme with €80 billion for the 2014–20 period – representing an increase of about 50% compared with the present 2007–13 budget even after deducting the addition of programmes presently not under FP7. The EU needs an active policy for RDI because it has important ambitions, such as creating a single European research area, reaching a total RDI expenditure (private and public) of 3% of EU GDP (presently at 1.9%) and providing a technology push in the area of energy through the Strategic Energy Technology (SET) Plan.⁶

⁶ J. Nuñez Ferrer, C. Egenhofer and M. Alessi (2011). *The SET-Plan: From Concept to Successful Implementation*, CEPS Task Force Report, Centre for European Policy Studies, Brussels.

Without instruments at the EU level these targets cannot be achieved. Furthermore, without coordination at the EU level, the risk of duplication between EU and national funding programmes increases. Nevertheless, it is very important to keep in mind that the central weakness in the EU in the area of research is in the private sector. The share of public sector investment in RDI on average is not less than in the US or Japan. Therefore, instruments need to concentrate on engaging the private sector through active collaboration and new financial instruments to leverage their investment.

4.2.1. Funding Research and Innovation

In many EU countries, spending on R&D is comparatively low. To rectify this problem, new sources of funding need to be found. The EU is well-placed to direct funding programmes, such as regional and rural development funds, to encourage innovation. There are many good examples within individual countries of incubators and ‘seed corn’ finance for high-growth SMEs. However, more systematic exchanges of best practice and better networks between regions might help to improve outcomes. In addition to selective public funding, it is important to boost capital availability from private sector sources. Pan-European venture capital instruments would create a more effective funding environment for high-growth and innovative SMEs. The Commission should take this important work forward with the European Investment Bank, the European Investment Fund, and expert bodies in the memberstates. At EU level, crucial instruments that have already been adopted, such as the Strategic Energy Technology Plan (SET), remain under-funded. This problem must be addressed. One of the Commission’s most promising new proposals is for pan-EU SBIR programmes to underpin innovative procurement. SBIR should identify technology-oriented public sector challenges and fund R&D projects to develop new solutions to both old and emerging problems. This should now be rolled out as a priority. (Harbour, 2011)

4.2.2. EU’s Research and Innovation Policy

The starting point of research and innovation is embedded in the Lisbon pillar to prepare Europe for the ‘transition to a competitive, dynamic and knowledge based economy’ (Council of the European Union, 2000b). This was based on the analysis that Europe lacked R&D investment, had a low ability to turn knowledge into

innovation, and was fragmented when it comes to supporting and framing knowledge generation and innovation (Council of the European Union, 2000b). Within the broad collection of goals in this Lisbon pillar, research and innovation were key elements of this, mainly through the establishment of a ‘European Area for Research and Innovation’, through creating innovation-friendly environments and developing new businesses (mainly SMEs) and through the information society for all. (Edler, 2012)

4.2.3. EU’s Innovation and Entrepreneurship Policy

In Europe, all EU Member States and candidate countries have committed to the Lisbon Agenda and increased their public R&D expenditure. Thus, in the 2000s, European innovation policy has become somewhat biased toward a science push or linear model, in which R&D is supposed to lead to increased innovation and entrepreneurship.

Innovation as a policy area is primarily concerned with a few key objectives: ensuring the generation of new knowledge and making government investment in innovation more effective; improving the interaction between the main actors in the innovation system (universities, research institutes, and firms) to enhance knowledge and technology diffusion; and establishing the right incentives for private sector innovation to transform knowledge into economic value and commercial success (Commission of the European Communities, 2005; OECD, 2002c). Entrepreneurship policy emphasizes the individual person or entrepreneur. A critical issue for entrepreneurship policy is how to encourage the emergence of more new entrepreneurs and growing firms.

Entrepreneurship policy, then, is primarily concerned with creating an environment and support system that will foster the emergence of new entrepreneurs and the start-up and early-stage growth of new firms (Lundstrom & Stevenson, 2005; Stevenson & Lundstrom, 2002). The framework of entrepreneurship policy measures includes policy actions in six areas: (1) promotion of entrepreneurship; (2) reduction of entry/exit barriers; (3) entrepreneurship education; (4) start-up support; (5) start-up financing; and (6) target group measures (Stevenson & Lundstrom, 2002). Major policy instruments and measures in this policy area include those to remove administrative and regulatory to new firm entry and growth, improve access to

financing and to information, and other support infrastructure and services. To promote a culture of entrepreneurship, expose more students to entrepreneurship in the education system, and remove barriers to entrepreneurship among specific target groups within the population are further examples of major policy instruments (Gabr & Hoffman, 2006; Lundstrom & Stevenson, 2005).

Both innovation and entrepreneurship policy have caught the attention of policymakers at different governmental levels, e.g. local, regional, national, and supranational. Both are considered vital for economic growth and industrial renewal and rank high on government policy agendas. Also their combination (i.e. innovative entrepreneurship) is a phenomenon that has become increasingly important, especially in the last decade. Entrepreneurship and innovation policy are both derivations of other policy areas. While entrepreneurship policy has emerged primarily from SME policy, innovation policy has largely evolved from science and technology (S&T) or research and development (R&D) policy. (Dahlstrand & Stevenson, 2010).

4.3. Europe 2020 Strategy

Europe 2020 is a 10-year strategy and proposed by the European Commission on 3 March 2010 for advancement of the economy of the European Union. It aims at "smart, sustainable, inclusive growth" with greater coordination of national and European policy.⁷ It follows the Lisbon Strategy for the period 2000–2010.

Europe 2020 puts forward three mutually reinforcing priorities:

- **Smart growth:** developing an economy based on knowledge and innovation. Smart growth means strengthening knowledge and innovation as drivers of our future growth. This requires improving the quality of our education, strengthening our research performance, promoting innovation and knowledge transfer throughout the Union, making full use of information and communication technologies and ensuring that innovative ideas can be turned

⁷ *Europe 2020: Commission proposes new economic strategy*, European Commission. Retrieved May 10, 2013 from http://ec.europa.eu/news/economy/100303_en.htm

into new products and services that create growth, quality jobs and help address European and global societal challenges. But, to succeed, this must be combined with entrepreneurship, finance, and a focus on user needs and market opportunities.

- **Sustainable growth:** promoting a more resource efficient, greener and more competitive economy. Sustainable growth means building a resource efficient, sustainable and competitive economy, exploiting Europe's leadership in the race to develop new processes and technologies, including green technologies, accelerating the roll out of smart grids using ICTs, exploiting EU-scale networks, and reinforcing the competitive advantages of our businesses, particularly in manufacturing and within our SMEs, as well through assisting consumers to value resource efficiency. Such an approach will help the EU to prosper in a low-carbon, resource constrained world while preventing environmental degradation, biodiversity loss and unsustainable use of resources. It will also underpin economic, social and territorial cohesion.
- **Inclusive growth:** fostering a high-employment economy delivering social and territorial cohesion. Inclusive growth means empowering people through high levels of employment, investing in skills, fighting poverty and modernising labour markets, training and social protection systems so as to help people anticipate and manage change, and build a cohesive society. It is also essential that the benefits of economic growth spread to all parts of the Union, including its outermost regions, thus strengthening territorial cohesion. It is about ensuring access and opportunities for all throughout the lifecycle. Europe needs to make full use of its labour potential to face the challenges of an ageing population and rising global competition. Policies to promote gender equality will be needed to increase labour force participation thus adding to growth and social cohesion.⁸

The EU needs to define where it wants to be by 2020. To this end, the Commission proposes the following EU headline targets:

⁸ European Commission (2010). *Communication from the Commission Europe 2020, A European strategy for smart, sustainable and inclusive growth*. Brussels: European Commission, Retrieved May 10, 2013 from <http://ec.europa.eu/eu2020/pdf/COMPLETE%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>

- 75 % of the population aged 20-64 should be employed.
- 3% of the EU's GDP should be invested in R&D.
- The "20/20/20" climate/energy targets should be met (including an increase to 30% of emissions reduction if the conditions are right).
- The share of early school leavers should be under 10% and at least 40% of the younger generation should have a tertiary degree.
- 20 million less people should be at risk of poverty.

4.3.1. Innovation Union

Innovation Union is an important key for smart, sustainable and inclusive economy to achieve goals of Europe 2020 Strategy. Innovation Union's goal is to enhance conditions and access to finance for innovation and research in Europe. There are some major fields which Innovation Union focuses on such as climate change, healthy living and energy efficiency in terms of citizens. Innovation Union includes commercial innovation, social innovation and public sector and its aim is to incorporate with all regions in the innovation cycle and involve everyone in innovation so all member states will benefit from Innovation Union.

Innovation Union is an investment for our future which is vital. By 2020, the target is to invest 3% of EU GDP on Research and Development and via this target it aims to create 3,7 million jobs. To succeed this target, Europe will be needed to have at least one million more researchers in the next decade. Also future EU research and innovation programmes will focus on Europe 2020 objectives and particularly the Innovation Union. If you are an entrepreneur, Innovation Unions means easier participation in European Union research, innovation programmes and the Innovation Union will make it easier for you to commercialise your ideas and grow your company. If you are a researcher, Innovation Union means easier participation in EU research and innovation programmes so you can easily conduct your research in Europe. If you are a citizen, The Innovation Union will contribute to innovations and breakthroughs to improve your quality of life and create jobs.

4.3.2. EU Entrepreneurship 2020 Action Plan: Boosting Innovation and Entrepreneurship in Europe

Europe needs more entrepreneurs and the Commission is looking at ways in which innovation culture may be encouraged. The European Commission published at the beginning of 2013 the Entrepreneurship 2020 Action Plan, an important document defined as “a blueprint for decisive action to unleash Europe’s entrepreneurial potential and boost entrepreneurship and innovation culture in Europe”. According to European Commission, Entrepreneurship has a key role in the creation of new companies, and SMEs represent the most important source of new employment in the EU. Thanks to different European programs which are offering the chance to develop innovative products and services, small companies can play an important role in fostering entrepreneurship among young generations in Europe.⁹

4.3.3. Reigniting the Entrepreneurial Spirit in Europe

Admittedly, the entrepreneurial spirit in Europe compared to that in the USA and Asian countries might be different. No doubt, with respect to the prosperity of the EU, it would be more than welcome to stimulate the entrepreneurial spirit of European citizens. However, enhancing entrepreneurship in Europe is very difficult, particularly from a policymaker’s perspective, because it can be achieved only step-by-step and may take a lot of time and efforts and, thus, remain among the major challenges for a long time (Ortega-Argile’s & Voigt, 2009). The Entrepreneurship 2020 Action Plan proposes three main areas of intervention aiming at enhancing entrepreneurial education and support to business creation:

1. Strengthen framework conditions for entrepreneurs by removing existing structural barriers,
2. Support to entrepreneurs in crucial phases of the business lifecycle,
3. Spreading the culture of Entrepreneurship in Europe in order to nurture a new generation of entrepreneurs.

⁹ European Commission (2013). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Entrepreneurship 2020 Action Plan*, Brussels: European Commission, Retrived May 10, 2013 from http://ec.europa.eu/governance/better_regulation/documents/1_EN_ACT_part1_v4.pdf

4.3.4. Competitiveness Frame of EU

The EU is not a homogeneous entity in terms of competitiveness. On the contrary, large disparities exist among Member States, with some countries performing much better than others and well above the EU average or other advanced economies, such as the United States.

Table 3. Europe 2020 Competitiveness Report 2012 coverage.

| European Union's membership and relationships with selected countries | | | | |
|--|----------------|--|--------------|--|
| Economy | EU code | Status/ Relationships with EU | Since | GDP p.c. (in current €), 2011 |
| Austria | AT | Member € | 1995 | 35,764 |
| Belgium | BE | Member € | 1952 | 33,765 |
| Bulgaria | BG | Member | 2007 | 5,211 |
| Cyprus | CY | Member € | 2004 | 22,161 |
| Czech Republic | CZ | Member | 2004 | 15,012 |
| Denmark | DK | Member | 1973 | 43,056 |
| Estonia | EE | Member € | 2004 | 11,947 |
| Finland | FI | Member € | 1995 | 35,297 |
| France | FR | Member € | 1952 | 30,478 |
| Germany | DE | Member € | 1952 | 31,415 |
| Greece | EL | Member € | 1981 | 19,221 |
| Hungary | HU | Member | 2004 | 10,028 |
| Ireland | IE | Member € | 1973 | 34,775 |
| Italy | IT | Member € | 1952 | 26,126 |
| Latvia | LV | Member | 2004 | 8,805 |
| Lithuania | LT | Member | 2004 | 9,428 |
| Luxembourg | LU | Member € | 1952 | 81,201 |
| Malta | MT | Member € | 2004 | 15,426 |
| Netherlands | NL | Member € | 1952 | 36,532 |
| Poland | PL | Member | 2004 | 9,721 |
| Portugal | PT | Member € | 1986 | 16,160 |
| Romania | RO | Member | 2007 | 6,047 |
| Slovak Republic | SK | Member € | 2004 | 12,872 |
| Slovenia | SI | Member € | 2004 | 17,441 |
| Spain | ES | Member € | 1986 | 23,248 |
| Sweden | SE | Member | 1995 | 40,856 |
| United Kingdom | UK | Member | 1973 | 27,797 |
| <i>EU accession and candidate countries</i> | | | | |
| Croatia | | Accession country | 2011 | 10,396 |
| Iceland | | Candidate country | 2010 | 31,764 |
| Macedonia, FYR | | Candidate country | 2005 | 3,532 |
| Montenegro | | Candidate country | 2010 | 5,364 |
| Serbia | | Candidate country | 2012 | 4,699 |
| Turkey | | Candidate country | 1999 | 7,455 |
| <i>Comparator countries</i> | | | | |
| BRIC | | Comparator group | | |
| Canada | | Comparator country | | 36,945 |
| Japan | | Comparator country | | 33,435 |
| United States | | Comparator country | | 34,334 |

In comparative terms, the EU tends to perform better than other advanced economies (United States, Japan and Canada) in ensuring inclusive and sustainable societies. The EU fares better in building inclusive societies than the United States but worse than Japan and Canada. The European socio-economic model has traditionally been based on building inclusive societies by developing strong welfare states that would support people during difficult times. To a certain extent, the sharp rise in long-term unemployment in some countries of the EU has put the model under duress and reduced the ability of these economies to provide gainful employment on a sustainable basis. In terms of sustainability, the EU performs relatively well-above the United States and above Japan. Only Canada, among the comparator countries, outperforms Europe in this dimension. (Schwab & Brende, 2012)

4.4. Instruments for Funding Innovation and Research

4.4.1. Seventh Framework Programme (FP7)

The Seventh Framework Programme for Research and Technological Development (FP7) is the EU primary tool for funding research over the 2007-2013 period. The programme is aimed at research centres, scientific or technological organisations, governments and companies. FP7 is a key tool to respond to Europe's needs in terms of jobs and competitiveness, and to maintain leadership in the global knowledge economy. Any organisation operating in one of the EU Member States may take part in the Programme, which provides for a variety of grants covering up to 100 % eligible investment costs. EC FP7 with a total budget of over €50 billion for the period 2007-2013 is the EU instrument specifically targeted at supporting research and development. It provides funding to co-finance research, technological development and demonstration projects based on competitive calls and independent peer review of project proposals. Support is available for collaborative and individual research projects as well as for the development of research skills and capacity. Since the 1980s, the successive Research Framework Programmes have played a lead role

in multidisciplinary research and cooperative trans-national R&D activities in Europe and beyond.¹⁰

The main objectives of FP7

Knowledge lies at the heart of the European Union's Lisbon Strategy to become the "most dynamic competitive knowledge-based economy in the world". The knowledge triangle - research, education and innovation - is a core factor in European efforts to meet the ambitious Lisbon goals.

Numerous programmes, initiatives and support measures are carried out at EU level in support of knowledge. The FP7 bundles all research-related EU initiatives together under a common roof playing a crucial role in reaching the goals of growth, competitiveness and employment; along CIP, Education and Training programmes, and Structural and Cohesion Funds for regional convergence and competitiveness. The broad objectives of FP7 have been grouped into four categories: Cooperation, Ideas, People and Capacities. For each type of objective, there is a specific programme corresponding to the main areas of EU research policy. All specific programmes work together to promote and encourage the creation of European poles of (scientific) excellence.¹¹

The Framework Programmes for Research have two main strategic objectives:

- to strengthen the scientific and technological base of European industry;
- to encourage its international competitiveness, while promoting research that supports EU policies.

4.4.2. Competitiveness and Innovation Framework Programme

The Competitiveness and Innovation Framework Programme aims to foster the competitiveness of European enterprises and has a total budget of over €3.6 billion for the period 2007-2013. Specific CIP programmes promote innovation (including eco-innovation); foster business support services in the regions and better access to finance, with SMEs as the main target; encourage a better take-up and use of ICT;

¹⁰ *FP7 in Brief, What is FP7? The Basics.* Retrieved May 4, 2013 from http://ec.europa.eu/research/fp7/understanding/fp7inbrief/what-is_en.html

¹¹ *The main objectives of FP7: Specific Programmes,* Retrieved May 3, 2013 from http://cordis.europa.eu/fp7/understand_en.html

help to develop the information society and promote the increased use of renewable energies and energy efficiency.¹²

The CIP aims to encourage the competitiveness of European enterprises. With SMEs as its main target, the programme will support innovation activities (including eco-innovation), provide better access to finance and deliver business support services in the regions. It will encourage a better take-up and use of ICT and help to develop the information society. It will also promote the increased use of renewable energies and energy efficiency.

While the EIP of the CIP makes use of several different schemes and intervention mechanisms, in other areas of the CIP a considerable part of the money will be spent on grants to business and public actors all over Europe and beyond, in order to co-finance pilot and market replication projects, as well as best-practice exchange and networking. To this end, grants are determined on the basis of calls for proposals and evaluation procedures, which are highly competitive. CIP, like FP7, has no fixed national or regional allocations. In order to complement national programmes, activities funded from CIP must have a “European added value”. This European added value is the clear demonstration of benefits of the project at a European level. For example, it must be clear why this project should receive European funding as opposed to being funded by local, national or regional resources.

The CIP is structured in the following three specific programmes, each of which has its own governance structure and annual work programmes:

4.4.2.1. Entrepreneurship and Innovation Programme (EIP)

The EIP focuses on facilitating access to finance for the start-up and growth of SMEs and encourages investment in innovation activities, creating an environment favourable to SME cross-border cooperation, promoting all forms of innovation in enterprises and fostering an entrepreneurship and innovation culture.

¹² *New Practical Guide to EU Funding Opportunities for Research and Innovation, Competitive European Regions through Research and Innovation*, p. 62-63. Retrieved May 4, 2013 from ftp://ftp.cordis.europa.eu/pub/fp7/docs/practical-guide-rev3_en.pdf

The EIP aims to achieve its objectives through the following schemes:

- better access to finance for SMEs through "CIP financial instruments", particularly venture capital investments and loan guarantee schemes;
- the Enterprise Europe Network, a Network with a full geographical coverage in all EU 27 Member States that delivers, through a customised network of regional centres, business and innovation support services to RTDI actors, particularly SMEs;
- support to encourage trans-national networking of innovative companies and all other actors in the innovation process, including benchmarking initiatives and the exchange of best practice;
- support to eco-innovation, thus making sustainable development become a business reality;
- support for policy-making that encourages entrepreneurship and innovation.

Following the adoption of the Innovation Union and as from 2011, the EIP will provide support to pre commercial public procurement and to different initiatives on social innovation undertaken at national or regional level.¹³

4.4.2.2. Information Communication Technologies Policy Support Programme (ICT-PSP)

The ICT-PSP focuses on developing a single European information space, strengthening the European internal market for ICT and ICT-based products and services, stimulating innovation through the wider adoption of and investment in ICT and developing an inclusive information society and more efficient and effective services in areas of public interest, and improving quality of life. The ICT-PSP aims to foster innovation and competitiveness through the wider uptake and best use of ICT by citizens, governments and businesses and in particular SMEs.

¹³ *New Practical Guide to EU Funding Opportunities for Research and Innovation, Competitive European Regions through Research and Innovation*, p. 62-63. Retrived May 4, 2013 from ftp://ftp.cordis.europa.eu/pub/fp7/docs/practical-guide-rev3_en.pdf

4.4.2.3. Intelligent Energy Europe Programme (IEE)

The IEE programme focuses on fostering energy efficiency and the rational use of energy sources, promoting new and renewable energy sources and energy diversification, and promoting energy efficiency and new energy sources in transport. The IEE programme aims to improve market conditions for untapped opportunities to save energy and encourage the use of renewable energy sources, therefore moving towards a more energy intelligent Europe.¹⁴

4.4.2.4. Consistency with other Community Policies

The CIP links up with other key Community initiatives. Their different activities are implemented in parallel and complement each other. The framework programme is thus involved in achieving Community objectives in the fields of research, cohesion, the environment, education and training. The CIP thus facilitates access to finance for businesses whose activities relate to innovation, research and development. It also helps businesses get involved in the 7th Framework Programme for Research and Technological Development (FP7-RTD).¹⁵

4.4.3. Programme for the Competitiveness of Enterprises and SMEs , COSME

The proposal of the European Commission for a COSME aims at encouraging the competitiveness of European enterprises. With SMEs, current and potential entrepreneurs and business support organisations as its main targets, the programme will provide better access to finance, deliver business support services and promote entrepreneurship. Subject to the approval by the Council and the European Parliament, the Programme will run from 2014 to 2020 with a foreseen budget of € 2.5 billion.

¹⁴ *New Practical Guide to EU Funding Opportunities for Research and Innovation, Competitive European Regions through Research and Innovation*, p. 62-63. Retrieved May 4, 2013 from ftp://ftp.cordis.europa.eu/pub/fp7/docs/practical-guide-rev3_en.pdf

¹⁵ *Competitiveness and Innovation Framework Programme (CIP) (2007-2013)*, Retrieved May 4, 2013 from http://europa.eu/legislation_summaries/information_society/strategies/n26104_en.htm

Objectives of this programme

- Facilitating access to finance for SMEs.
- Creating an environment favourable to SME creation and growth.
- Encouraging an entrepreneurial culture in Europe.
- Strengthening the sustainable competitiveness of EU enterprises.
- Supporting the internationalisation of SMEs and improving their access to markets.

In order to achieve its objectives, the COSME programme will ensure continuity of initiatives and actions already undertaken by the EIP, building on the results and lessons learnt. While many successful features of the EIP will be continued, access to the programme will be simplified to make it easier for entrepreneurs and SMEs to benefit from it.¹⁶

4.4.4. The EU Framework Programme for Research and Innovation, HORIZON 2020

The new EU Framework Programme for Research and Innovation which will be in force from 2014 to 2020 with an €80 billion budget will be called as “H2020”. This programme will be as a continuation of FP7 Programme. H2020 is the financial instrument implementing the Innovation Union which is one of the main initiative of the Europe 2020 Strategy and aims the sustainability of Europe's global competitiveness. This programme is an integral part of the drive to create new growth and jobs in Europe. H2020 will combine all research and innovation funding currently provided through the Framework Programmes for Research and Technical Development, the innovation related activities of the CIP and the EIT.

It aims to strengthen the research, to make it easier for scientists, industry and SMEs have funding for EU-funded projects, to encourage the innovation by “H2020” Research Funding Programme which will be carried out by the European Commission. This new Research and Innovation Framework Programme will contribute to the growth and creation of new jobs in Europe.

¹⁶ *Programme for the Competitiveness of Enterprises and SMEs 2014-2020*, Retrieved May 4, 2013 from http://ec.europa.eu/cip/files/cosme/cosme_factsheet_final_en.pdf

Within the scope of the program,

- Will be provided to increase investment for employment and growth as for the current economic crisis.
- Will be contributed to solve people' worries related to earnings, security and environment.
- Will be contributed to strengthen EU's global positioning in research, innovation and technology.

In fact, in order to increase Europe's global competitiveness, it aims to strengthen Europe's knowledge base by creating funds for one million new researchers under Horizon 2020.

5. CONCLUSION

Europe's ability to cope with increasing global competition, impacts of crisis, challenges of an aging population and to create new job areas are closely associated with creating innovation in product, service, business and in social processes. Therefore, innovation is located in the heart of the Europe 2020 strategy. Since 2008, EU countries have been following steps to improve their innovation performance on a regular basis because Europe has a large potential in terms of innovation.

Europe has many advantages in terms of being one of the largest market in the world and having worldwide researchers, entrepreneurs and firms. It can be said that innovation will make a significant contribution to growth on the basis of these advantages. European Union's funded programmes are mostly not well-known in our country, especially large proportion of SMEs are not aware of these supports. If we are prompted to give an example, there is a programme which is called as Competitiveness and Innovation Framework Programme will be open until 2013 and the COSME programme which will be launched in 2014.

Small and medium-sized enterprises (SMEs) play a decisive role in the competitiveness and dynamic of the European economy. To help them realise their growth potential, the EU is working towards promoting entrepreneurship and creating a friendlier business environment for small businesses. The concept of entrepreneurship is reviewed and it is established that entrepreneurship, in particular SMEs entrepreneurship contributes in economic growth as it creates jobs, brings innovation and permeates knowledge filter and commercializes ideas.

Europe needs to make a step change in its research and innovation performance. As the Innovation Union pointed out, this requires that research and innovation be better linked. Breaking away from traditional compartmentalised approaches, the EU should focus more on challenges and outcomes to be achieved, linking the research and innovation funding more closely to the policy objectives. To help achieve the ambitious goals of the Europe 2020 Strategy, the Innovation Union must involve all regions thus avoiding an innovation divide between the strongest innovating regions and the others.

The European Union possesses several key funding instruments to support research and innovation which funds the Research Framework Programme as well as the Competitiveness and Innovation Framework Programme. The Competitiveness and Innovation Framework Programme is probably the most important EU funding in regards to stimulating innovation. With this study, we can see that the European Union provides support to European small and medium-sized enterprises (SMEs). This is available in different forms. Support is available either directly or through programmes managed at national or regional level, such as the European Union's Structural funds. Using these programmes actively and in an effective way will be turned out a great importance for SMEs.

There are some points which SMEs managers need to consider to benefit from these programmes effectively. SMEs managers should follow platforms which are about provided incentives to SMEs. They need to identify interested employees in order to follow and use these platforms effectively. They should participate to all meetings, events and trainings to have information about these programs. Within the SMEs, the planning should be done for operations on an annual basis and in this regard they need to focus on their identified areas which they need to be encouraged with incentives. While SMEs managers are considering these points, they need to keep in mind possible constraints which they can face with about using these incentives in an effective way and to disseminate.

Within this context, by raising the awareness of SMEs within these programmes, positive effects can be observed in terms of increasing activities based on innovation and entrepreneurship.

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