

BURGAS FREE UNIVERSITY

CENTRE FOR ECONOMIC AND MANAGEMENT SCIENCES

---

Delyan Lazarov Lazarov

SHAPING AND STIMULATING THE INNOVATION ACTIVITY OF  
BUSINESSES

**AND P IS P**

Of thesis work for the award of an educational and scientific degree  
doctorate in occupational stream 3.8. Economics, PhD  
economic and Governance (Industry) Programme

Scientific managers: Prof. Dr. Milen Baltov

Prof. Dr. Yulia Yorgova

Burgas

2022

The 270-page dissertation work consists of an introduction, three chapters, a conclusion

and a list of the literature used. Dissertation work contains 33 figures, 31 tables and 2 graphs. The list of literature used consists of 348 sources of Cyrillic and Latin characters.

Dissertation work was discussed and aimed at protecting a meeting of the Scientific Council of the Centre for Economic and Management Studies at the Free University of Burgas on 29 June 2022.

The public defence will be held in open session of the Scientific Jury on 17 January 2023. \_\_\_\_\_ in \_\_\_\_\_ at the Free University of Burgas.

The defence material is available on the website of the Free University of Burgas [www.bfu.bg](http://www.bfu.bg)

## **I. GENERAL FEATURE OF DISERTATIONAL WORK**

### **1.Update of the problem.**

In theatre, the topicality of the subject is determined by a number of circumstances, the

most important of which are:

1. As a result of the political and economic changes that took place in the early 90s, a process of transforming the ownership structure of firms and forms of industrial governance began, leading to the destruction of the then existing mechanisms of institutional, cross-industry and inter-company relationships and interaction;
2. The strong dependence of the Bulgarian economy on funding from the European Structural Funds, which are the only source of growth and a major factor in the development of the economy. The positive effect of Bulgaria's membership of the European Union (EU) directly depends on the competitiveness levels of companies in the country;
3. The main mechanism for improving the competitiveness of the national economy, its individual industries and enterprises is innovation activity, which is linked to the improvement of production processes and factors, a cardinal increase in the technological level of the various industries and a significant increase in the share of high-tech enterprises. This technological modernisation is driven by the openness of the economy to innovative activity.

More generally, the relevance of the subject of dissertation work is related to the definition of working methods for the transformation of innovation activity into competitiveness growth at the level of individual enterprises is the most important and important prerequisite for sustainably managing the competitiveness of the Bulgarian economy as a whole and reaching new levels of development in line with the requirements of the present and future.

In the traditional sectors of the country, the creation and integration of new mechanisms for interaction is still ongoing, which is a prerequisite for significantly reducing the potential of the Bulgarian industry and does not deliver the expected results of the various governments' policies to stimulate the economy, including funding from the European Structural Funds.

Innovation is bringing about radical technological changes that accompany the modernisation of the economy and its transition to a post-industrial stage. This inevitably leads to a set of governance issues for which a complex scientific and methodological solution has not yet been developed.

Innovation-based modernisation processes entail overcoming contradictions between seeking qualitatively new levels of growth and financing it. Deep technological transformation of the economy is impossible without state support and the building of partner, reliable and sustainable principles of interaction between business structures and government and institutions.

There is currently a discrepancy between the requirements of the present, the orientation of state strategies, programmes and support for the implementation of innovation policy and the reality of innovation development in the country. This finding is also supported by the results of the annual EU Innovation Scoreboard for 2019, where Bulgaria is located in the nearby 27 place out of 28 participants (EU28). This fact confirms the incoherence of the state's and business's efforts with regard to the country's investment policy priorities, which reduces Bulgaria's potential for innovative development.

All of the above confirms the relevance of the subject of dissertation work and identifies the need to examine the theoretical and methodological characteristics of the interaction between innovation and reproduction processes and, therefore, the competitive positioning of

undertakings in order to achieve sustainable growth in the Bulgarian economy.

## 2. Objectives and objectives of the study.

**The aim of thesis** is to develop methodological approaches and tools designed to create and implement mechanisms for increasing innovation in small and medium-sized enterprises.

The stated purpose of thesis requires the **following tasks to be addressed:**

- Presentation of the nature and specificity of the innovation activity of enterprises;
- Defining the role of innovation in the growth of firms and the economy as a whole;
- Clarifying the impact of innovation on the well-being of society as a whole;
- Analyse the innovation management system to undertakings and disclosure of interconnections between its subsystems;
- Appointment of the factors, stimulating innovation activity to businesses and justification of their use to increase the efficiency of innovation management;
- Defining the necessary conditions for growth through innovation and changing business models for business management;
- Development of methodological tools to analyse the innovation potential of the enterprise;
- Justifying pathways and methodological tools to stimulate the innovation potential of enterprises;
- Proposing avenues for improving innovative development methods and tools;
- Developing methodological tools for assessing the innovation infrastructure of enterprises and identifying development paths.

## 3. Subject and subject of the study.

**The research object** is innovation activity in small and medium-sized enterprises as a process of capitalisation of R & D results for innovation creation and deployment.

**The subject matter of the study** is the system of organisational economic relations and management practices aimed at stimulating innovation development and increasing the efficiency of innovation in small and medium-sized enterprises.

## 4. Basic thesis.

**A key argument in thesis** is that there is a scientifically justified causal link between innovation and company growth.

- Innovation leads companies to grow;
- In order to realise the innovation potential, there is a need for structures and skills in companies to transform good ideas into reality.

## 5. Methods of testing.

The achievement of the objective and the defined tasks required disclosure of the origins and complex evolution of the processes studied, their dynamics and their impact on business and societal development. The study therefore uses a collection of scientific approaches and methods, mainly inductive and inductive approaches, statistical methods, comparative method,

case study method, survey method, observation method. These methods, whether alone or in combination, clarify the origins, characteristics and possibilities for increasing the efficiency of the innovation activity of small and medium-sized enterprises.

## **6. Limitations of the survey.**

The restrictions relating to the object and object thus defined are essentially twofold. First, the focus of dissertation work is on research into innovation and its impact on company growth and the well-being of society.

Secondly, empirical research is limited to small and medium-sized enterprises (SMEs) from South-East and South-West planning regions. The study was carried out in the framework of the project “Regional indexation of innovation activity in economic sectors (iris) – scenarios to the four priority thematic areas for smart specialisation identified in the ISIS and their place in the circular economy”.

## **7. Information provision of the study.**

The study carried out shall include primary and secondary data sources. The primary data was collected through a survey of the groups identified as the subject of the study, namely SME owners and managers from the SER and the UPR.

European statistics and business reports from leading economic agencies and consultancy companies were used as secondary sources.

The study used 348 literature and internet sources in Latin and Cyrillic alphabet. Foreign sources were translated by the author of this work from English.

## **8. Amprobation.**

Parts of the dissertation work have been published in specialised scientific journals and presented at scientific conferences. The author plans to apply research findings through direct impact in the company in which he works, consultancy in a wider range of enterprises and inclusion in educational literature.

Methodological tools developed in the context of the dissertation work to assess the innovation infrastructure of enterprises can be applied in a time series to monitor the impact of both measures by the State and measures by SME owners and managers to assess progress with regard to aspects of innovation activities.

The results achieved would be beneficial both in a purely implemented plan to build and develop appropriate innovation capabilities, culture, structure and strategy in SMEs, and for future research into the innovation activity of companies. The relevance of the problem also implies that the results of the survey are also of interest to society as a whole.

## **II. STRUCTURE AND CONTENT OF THE DISSERTATION WORK**

### **1. The structure of the dissertation work.**

Dissertation work is structured according to the objective, research tasks, object, subject of research and reflects the author's approach to the topic.

The volume of dissertation work is 270 pages, of which 3 pages of content, 250 pages of exhibition and 17 pages of bibliographic information. The presentation consists of an introduction, three chapters and a conclusion. The bibliographic note contains 348 titles, including scientific literature, analytical reports, articles and business research. The main text is illustrated by 33 figures, 31 tables and 2 graphs.

### **2. Content of dissertation work.**

The content of the dissertation work is structured as follows:

1. Update of the problem.	2
2. Objectives and objectives of the study.	4
4. Basic thesis.	4
5. Methods of testing.	4
6. Limitations of the survey.	5
7. Information provision of the study.	5
8. Amprobation.	5
CHAPTER 1: 7	THEORETICAL ASPECTS OF INNOVATION, 7
INNOVATION AND GROWTH OF FIRMS	7
CHAPTER 3. RESEARCH ON THE INNOVATIVE PERFORMANCE OF BULGARIAN ENTERPRISES.	33
CONCLUSION	46
Scientific contributions	47
Scientific – Applied Contributions	48
Articles and reports	49

## CHAPTER 1: THEORETICAL ASPECTS OF INNOVATION, INNOVATION AND GROWTH OF FIRMS

**Chapter 1** of the dissertation collects, analyses and synthesises numerous scientific sources which present the state of the art of innovation and its impact on social – economic processes.

Mainly scientific publications and works have been used as a basis to analyse theoretical and empirically innovation issues and their impact on people, organisations and society as a whole. This part of the dissertation tracks the path from the isolated concept of innovation to its influence on the growth of firms and the well-being of society.

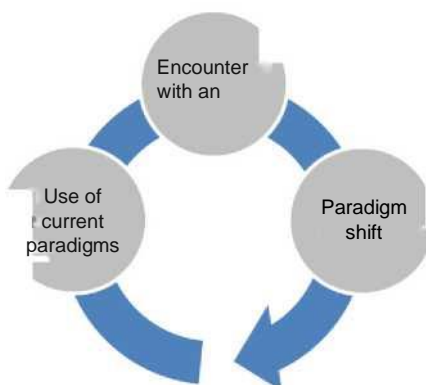
Nowadays, it is impossible to imagine the world without the innovations that have already taken place, which determine our daily lives and the future ones that will contribute to the next stages of the evolution. Innovation, in the opinion of most professionals and analysts, is the leading driver of economic and social development. International experience shows that, together with traditional industries, significant growth reserves provide areas that exploit the scientific and technical and intellectual potential of the economy and society. In today’s world of dynamic change, a key priority is the development of state economies through the uptake of new technologies and innovative industrial modernisation in order to respond to the current dramatic challenges and opportunities related to rapid digitalisation, energy transitions and new energy sources and to ensure the sustainability of enterprises.

Today’s challenges determine the paramount importance of questions about the essence of innovation and its role in science and practice. In order to respond fully to these questions, **paragraph 1** follows four aspects of the phenomenon of innovation covering virtually all real areas, namely **philosophical, scientific, technological, economic and social**.

The roots of the contemporary **philosophy of innovation** are rooted in classical philosophical theories, the main authors of which are Plato and Aristotle. Aristotle’s view of the dynamics of processes, their movement and change, which is now called a dynamic approach, is most fruitful for the development of modern innovation.

It is also important to explore the phenomenon of innovation in the context of **science**. Science, like the other spheres of culture, is unimaginable beyond its understanding through the lens of scientific traditions and scientific revolutions. Scientific revolutions can be characterised as the most powerful manifestations of real change and innovation through the paradigm shift that is dominant at a given stage of time, from which the dynamics of science and research are determined. The mechanism of this dynamic is presented in Figure 1.

*Figure 1*



The mechanism of dynamics is described in the form of a continuous cycle of replacement of current paradigms with new ones and is explained as follows: when working within traditional perceptions (paradigms), scientists face anomalies that can be described as problems that cannot be solved on the basis of traditional knowledge, which requires new research in search of new knowledge that contributes to scientific revolutions, i.e. changing the old paradigm to a new one. However, due to the temporary nature of the paradigms, sooner or later the new paradigm becomes old and thus the wheel of progress rotates.

In economic terms, **innovation** describes the development and application of ideas and technologies that improve goods and services or make their production more efficient. The development and uptake of major technical discoveries and inventions are crucial for major industrial reforms, which in turn underpin the existence of tangible cycles of economic times, which are the basis for the industrial revolutions.

Technically, **the economic phenomenon** of innovation is directly linked to radical changes in the usual working principles and to the next horizon of operational achievements, either through the direct use of emerging technologies or by the development of new production and organisational models. This brings about a transformation of the entire organisation into industry, triggering a further industrial revolution and the need for new strategies for technological improvement, productivity and ultimately preserving and increasing the prosperity and well-being of society as a whole, for both current and future generations.

Innovation is a phenomenon that is not only measured in the present but also provides a compass for the future, which makes it extremely important for the **social sphere**. Innovation through a social perspective is not only measured by significant social changes linked to increasing the benefits of the population, but also by new social and cultural norms and examples of consciousness and behaviour of people in society. The particular feature of understanding social innovation is the need to assess its impact by putting a first plan on human beings, as well as its attitude and response to the challenges of time.

At this stage of the study, four aspects of the phenomenon of innovation have been identified, covering virtually all real areas, namely philosophical, scientific, technological, economic and social. Based on the information presented and through authoritative interpretation, Figure 2 presents a simplified model based on a logical sequence of events leading to innovative solutions through a transition between real domains.

Figure 2



1. Use of existing methods



2. Encounter with anomalies that cannot be solved using current methods
3. Generating ideas without material expression
4. Financing investments for the realisation of ideas
5. Inventing innovative solutions
6. Changing existing methods with new ones based on innovation
7. Industrial revolutions following the invention of innovation
8. Increasing the well-being of society as an economic concept that goes beyond traditional income-understanding.

**Point 1** of Chapter 1 also defines the phenomenon of innovation, taking into account the fact that the term comes from the Latin word ‘innovare’, which means renewal. This term appeared in print at the beginning of the 15th century and is subject to many interpretations and, as a consequence, has a great variation in meanings for different authors, making it the typical example of a modern word that is used in different time periods. That word is so used and used that it is beginning to lose its original meaning. This part of dissertation work presents numerous and multifaceted definitions of innovation and its role in social and economic life. There are good concepts in these definitions, but none strikes the right balance between clarity, usefulness and conciseness, which makes it necessary to turn to classic definitions of the nature of innovation.

The most popular definition is Joseph Schumpeter’s case, which in 1934 added a definition of innovation as “a new way of combining new or existing knowledge, resources, equipment and other factors of production”. According to Peter Drucker, “Innovation is the specific instrument of entrepreneurship – the action that donates resources with new capacity to generate wealth”. The American author Scott Berkun believes that “Innovation is a significant positive change”. According to Tim Kastelle, ‘Innovation not just an idea, but an idea that has been realised so as to create value’.

The sequence of presentation of the latter definitions is not random, it is intended to upgrade the definitions to achieve the fullest, concise and useful description of the term innovation. Starting with the combination of new production factors, moving through the concept of new capacity to create value, adding the concept of significance and ending with a definition that includes three key concepts: idea, realisation and value creation.

On the basis of the definitions of innovation set out above, the author considers it appropriate to consider innovation from the point of view of creating, absorbing and disseminating innovations resulting from a complex of scientific, technical, organisational, financial and marketing activities carried out by interrelated innovation actors with a particular objective and having the means to achieve it.

**Point 1** of Chapter 1 continues the research on innovation with a presentation of their taxonomy. The classification, sorting of elements by category is a basic practice in the natural and social sciences. This is perhaps the most important and fundamental step in conducting any form of research (Carper and Snizek, 1980) and is central to research and understanding in many disciplines.

**Subsection 1.6.1** is dedicated to the concepts of innovation. It is often impossible to define innovation in advance and certain actions are innovative. Familiar concepts of innovation include:

- One-way (linear) innovation based on a research approach, with new ideas resulting from research and put into practice through one-way (linear) knowledge transfer. Change and innovation are expected to be designed and organised, predictable and need to be

rationally planned;

- Interactive (systemic) innovation, where the foundation is also the result of science, but also from practice and from intermediaries, advisory services, non-governmental organisations, researchers, etc. as participants in a bottom-up process. Interactive innovation involves existing (sometimes tacit) knowledge, which is not always purely scientific. Innovations created with an interactive approach often provide more targeted solutions that are easier to implement, as the process is conducive to speeding up the introduction and acceptance of new ideas.

Both approaches to innovation are equally valid, but the consequences for programming are different. The linear approach is based on outreach activities, linear consultation methods and training. The interactive model relies mainly on cooperation, knowledge sharing and intermediary consultation methods. This approach helps to develop initial research results into practical applications and to generate new ideas through cross-fertilisation between participants.

A classification of innovation is provided in paragraph **1.6.2**. The most common classification is based on the field of implementation. According to her, innovation is subdivided into 4 large groups:

- *Product innovation* – innovations in the form of products with changed or new characteristics, including from new materials, with new functions, etc.;
- *Technological innovation* – innovation in the form of modifications, process improvements or new derivative technologies;
- *Market, marketing innovation* – innovation in the form of changes in sales patterns, service, targeting new customers and markets;
- *Organisational and management innovation* – innovations in the form of changes in organisational structures, relationships, rights and responsibilities, in business management methods, in person-organisation relationships.

**Product innovation** involves using knowledge and/or technologies to create new or modify existing products or services to improve the company's competitive advantage and the likelihood of success (Gunday, Ulusoy, Kilic and Alpan, 2011; OECD. Et al., 2005).

This type of innovation is being implemented to better meet existing needs in terms of functionality, safety, reliability, productivity, economy. In some cases, product innovation can lead to significant changes in consumer habits (such innovations are PCs, etc.).

**Technological innovation** refers to the adoption of new production or deployment methods, techniques, mechanisms or procedures to reduce costs or improve quality (OECD, 2005). According to Fagerberg (2004), technological innovation leads to a lower improvement in the financial performance of the organisation than product innovation.

These are mostly innovations in manufacturing companies, which most often reduce labour and material costs, increase productivity, stabilise and improve product quality. Technological innovation is linked to product innovation, because very often product innovation requires changes to the production process.

**Market or marketing innovations** involve the introduction of ideas that lead to a change in product characteristics, product distribution channels, promotional tools or pricing method for greater customer satisfaction (Kotler, 1994). This type of innovation is most often linked to the emergence of new markets, the opening of new market thread, new production channels, the use of new ways of advertising, new discounts rules, etc.

**Organisational and management innovation** deals with administrative procedures that include updating methods, procedures, systems and tools to perform tasks or address the challenges of the external environment to reduce operational costs, improve staff satisfaction or improve organisational efficiency (Gunday, 2011; OECD, 2005).

This part of the study draws attention to the recent importance of **social and environmental innovation**, which is a particular type of organisational and management innovation. This is linked to increased societal demands on producing companies, increasing their responsibility both for their employees and customers, and for preserving the environment.

This is followed by the presentation of a classification of innovation according to the extent and nature of the change. On this basis, innovation is divided into the following groups:

- *Radical* innovation, which is a fundamental, decisive change in the existing product, technology, organisation or the emergence of new things without an analogue one. Radical innovation usually entails high risk, significant costs and indeterminate revenues.
- *Applied (compilation)* – innovations that are a good combination of transferring a combination of known elements to new sites. They are low-cost, but promise high revenues.
- *Added* – traditional mass innovation linked to the improvement of products, services and the filling of small niche markets. They are inexpensive and have little revenue.
- *Pseudo-innovation* – imaginable innovations imitating beneficial changes in products, services, market conditions. Sometimes they can lead to a deterioration in the quality of the new product compared to the baseline product.

A classification is provided according to the reason which gave rise to them. According to this criterion, innovation is divided into:

- *Pulled (Pull)*. These are innovations triggered by mature customer, societal or production needs. They are usually born as a result of market research or technical analysis of narrow production sites;
- *Pushed – innovations brought about by the* natural course of scientific and technological progress, which have their own internal development logic and create new societal needs themselves.

Section **1.6.3 presents** the famous model for the ‘Ten types of innovation’ created by Larry Kelly and Ryan Pikel, consultants in the strategic management and innovation firm ‘Doblin Group’ (currently part of Deloitte). The two offer the model following extensive research on innovation in a wide variety of companies and organisations. Kelly and Pikel note that companies tend to focus on product innovation, but product innovations are easily replicated by competition, with the result that it is difficult to create a long-term competitive advantage alone. The model therefore offers a total of ten different fields of innovation on which organisations can focus in order to remain or be competitive.

The ten types of innovation are divided into three broad categories and are presented in Figure 3.

Figure 3

Categories	Innovation areas
	1. Profit model

I. Configuration →	2. Network 3. Structure 4. Process
II. Proposal →	5. Product presentation 6. Product system 7. Servicing
III. Experience →	8. Channel 9. Brandt 10. User engagement

I. Configuration – innovation focused on the fundamental nature of the organisation and its key systems;

II. Proposal – innovation focused on the organisation’s key goods and services;

III. Experience – innovation focused on the organisation’s clients.

- *The Profit Model (Configuration)* is about how the organisation earns money. Innovative profit models find fresh ways to turn firm’s proposals and other sources of value into money;
- *The network (Configuration)* is linked to how the organisation connects with others and enters into strategic partnerships to create value;
- *The structure (Configuration)* refers to the way in which the organisation’s talents and resources are organised and combined. Innovation in a structure focuses on exploiting the talents and resources of the organisation in unique ways that create value;
- *The process (Configuration)* relates to how specific working methods and processes are used in the organisation to perform better work. Process innovation often forms the basis for shaping the key competences of the organisation that obtain sustainable competitive advantages that last for a very long time;
- *The product presentation (Proposal)* refers to how distinctive characteristics and qualities of the product are developed. Innovation in product presentation addresses the value, characteristics and quality of the offer the company makes to its target market;
- *The product system (Proposal)* concerns how complementary products are created that link with the main ones to create value;
- *Service (Expertise)* refers to how the organisation’s offer is supported and increased. Service innovation improves product performance and adds value;
- *The channel (Experience)* is related to how the users and customers of the organisation’s offer are reached;
- *The brand (Experience)* is about how the identity and value of the brand and firm is communicated;
- *User engagement (Expertise)* refers to how it interacts with consumers. Innovation in consumer engagement seeks to better understand customers’ wishes and use these insights to create a meaningful link between them and the organisation.

**Point 1.6.4** presents the Innovation Matrix. One way to categorise innovation is to classify it on the basis of two dimensions: the technology it uses and the market on which it operates. We can use the innovation matrix to visualise the most common types of innovation (Figure 4).

Figure 4



*Incremental innovation.* Most innovations are incremental, incremental and continuous improvements to existing concepts, products or services in the existing market. Incremental innovations are better than the previous version of the product or service and have only small variations in an existing product formulation or method of delivery of the service. Incremental innovation does not require major technological breakthroughs and does not normally have a major impact on market dynamics.

A possible drawback is that incremental innovations do not necessarily have a huge impact because they are often slightly better than what is already provided to customers. There is also a risk of over-complicating products and adding too many functions for which customers are not willing to pay. Another risk related to incremental innovation is that the market may change at some point in time due to disruption. If this is the case, relying on incremental innovation alone will not be sufficient to respond to this risk.

*Disruptive innovation* is the place where traditional business methods fail and require new opportunities. Although the risks are high, there is huge potential for growth. Destructive innovation was a concept introduced by professor, academic and business consultant Clayton Christensen, first in an article by HBR and later in his book *Innovate's Dilemma*. Disruptive innovation is a theory that refers to a concept, product or service that creates a new value network either by entering an existing market or by creating a completely new market.

At the outset, disruptive innovations have lower productivity, measured by traditional value indicators, but have different aspects that are assessed by a small segment of the market. This type of innovation is often capable of turning non-customers into customers, but does not necessarily have to address the needs and preferences of the main customers. What hampers disruptive innovation is that established organisations are fully rational in making decisions related to their existing business. They have failed to adapt to new competition as they are too focused on optimising the existing offer or business model, which has so far proved successful in the market. Thus, the market is usually distorted by a new entrant and not by an incumbent. This phenomenon, called the innovator's dilemma, is in fact quite logical, as the existing market

is often larger and the margins are better.

According to Christensen, one of the reasons why building disruptive innovation is a challenge for large organisations is that these companies depend on customers and investors for resources. This often means that the best performing companies have well-designed systems to kill ideas for which the most profitable customers are reluctant to pay extra.

Creating disruptive innovation involves greater risks and operators do not always have a failure plan. In other words, they were not used to considering their initial efforts to commercialise destructive technology as training opportunities.

*Sustainable innovation* is based on principles opposite to disruptive ones, as they exist in the current market and instead of creating new value chains, they improve and expand existing ones by meeting the growing needs of customers. Christensen explained this in this way. “Sustainable innovation targets demanding high-end customers with better performance than the previous one. Some supporting innovations are the gradual year-on-year improvements that all good companies are wasting. Other supporting innovations are breakthrough, high-speed products outside competition. It does not matter how technologically difficult innovation is: established competitors almost always win battles to maintain the technology. As this strategy involves creating a better product that they can sell for higher profit margins to their best customers, established competitors have strong motivation to lead supportive battles. And they have the resource to win.”

Sustainable innovation simply improves the efficiency of existing products in the industry, thus taking care of a well-established market. This represents most of the technological progress in any industry.

Most companies producing goods follow a rather consistent path of improvement of their products. They develop technological improvements and deliver updated versions of their products with the new improvements.

*Radical innovation.* In many cases, incremental and sustainable innovation is no longer sufficient to compete in fast-changing markets. Especially in times of digital change, companies must radically question existing structures, offers and business models. They need to develop solutions using fast, flexible and growth-enhancing methods of innovation. Radical innovation is a governance concept for long-term growth by creating new products, services and hitherto unknown business models that allow companies to identify key trends.

Radical innovation requires different thinking and is so different from what people are used to, at the outset they usually face considerable resistance. These types of innovation usually require a long time and technological development before they are ready for the main markets. However, when successfully implemented, this often means the beginning of a revolution and a new era that affects many sectors and regions.

This type of innovation is rare as it has similar characteristics to disruptive innovation, but it is different in a way that simultaneously uses disruptive technology and a new business model. In the recent past, there are telling examples. Technological innovation such as a personal computer and the internet are examples of radical innovations that have changed the way the whole world works and communicates.

Radical innovations solve global problems and address needs in completely new ways than we are used, and even offer solutions to needs and problems that we didn't know we have

by completely transforming the market or even the whole economy.

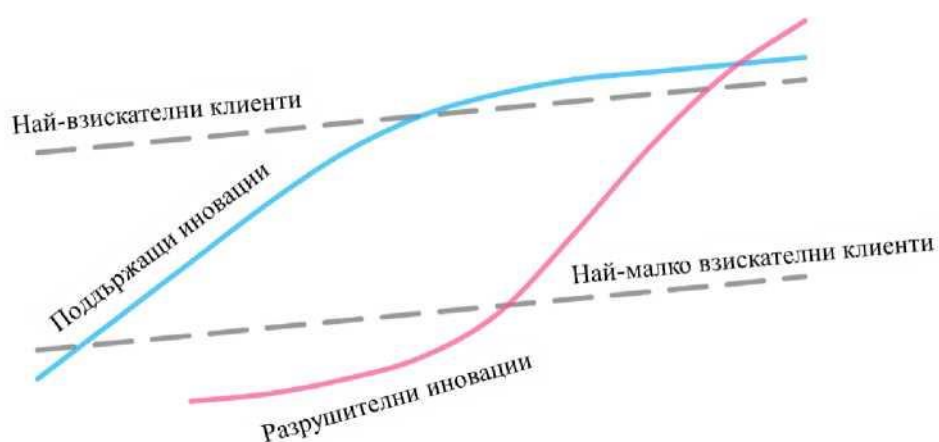
**Point 1.6.5.** is dedicated to the **“Innovation Dilemma”** and describes a theory of how large and successful companies can fail “by doing everything they should”. Christensen says the innovator dilemma describes companies whose successes and opportunities can actually become barriers to changing markets and technologies. Most large companies are able to turn sustainable technological challenges into achievements. Christensen argues that big companies have problems when they engage in disruptive innovations that occur less frequently, but when they happen, they can cause the failure of highly successful companies that are only prepared for supporting innovation.

Disruptive innovation creates problems as it does not initially meet the demands of the most demanding customers in the market. Large companies therefore choose to ignore disruptive innovations until they become more attractive for profit. However, disruptive innovations ultimately outweigh those supporting to meet market demand at lower costs. When this happened, large companies that had not invested in disruptive innovation earlier had significantly fallen behind. That, according to Christensen, is the ‘Innovation Due’.

Large companies have certain barriers to innovation, which make it difficult to invest in disruptive innovation at the outset. Being current industrial leaders means that they have defined ways to approach new technologies. Ongoing business organisation (equipment, training, procedures) hampers rapid reaction to disruptive innovations. Large companies also have an established customer base to which they have to report. These customers often ask for good versions of current products rather than entirely new technologies. Customers are a significant barrier to innovation. Finally, companies make decisions according to their place in the value chain – or simply put them to decide where they are on the market.

The principles of impact of disruptive innovation are presented in Figure 5.

Figure 5



Companies are constantly faced with two choices – they can either continue to do what they know is currently working well or accept disruptive innovations in an attempt to stay up to date. These difficulties are facing all companies and are yet to increase as innovative technologies continue to expand at an extremely fast pace.

**Point 2** of Chapter 1 draws attention to **small and medium-sized enterprises (SMEs)**. “Micro, small and medium-sized enterprises are the engine of the European economy. They are

a major source of jobs, create an entrepreneurial spirit and innovation in the EU and are therefore vital to promote competition and employment. The new definition of small and medium-sized enterprises, which entered into force on 1 January 2005, represents an important step towards a better business environment for them and is aimed at promoting entrepreneurship, investment and growth. This definition was drawn up after extensive stakeholder consultation, which proves that the hearing of small and medium-sized enterprises is key to the successful implementation of the Lisbon Strategy objectives” (Günter Verheugen, 2005).

SMEs are defined by the Small and Medium-sized Enterprises Act in the Republic of Bulgaria. In accordance with that law, in particular Article 3. (Amend. (SG No 59/2006) (1), which is synchronised with the definition of the European Commission, SMEs shall be categorised on the basis of the parameters illustrated in Table 1.

Table 1

Company category	Number (annual work units)	Annual turnover	Annual balance sheet total
Medium	250	≤ EUR 50 million or	≤ EUR 43 million
Small	50	≤ EUR 10 million or	≤ EUR 10 million
Micro enterprise	10	≤ EUR 2 million or	≤ EUR 2 million

Those three categories are subject to the requirement of independence, which means that up to 25 % of their capital or of the number of votes at the general meeting may be held by another undertaking, the parameters of which, together with the values of the undertaking in question, fall within the category of large undertaking. It is permissible to recognise as independent those small and medium-sized enterprises where not up to 25 % but up to 50 % hold venture funds, business angels, HEIs, institutional investors and local and public authorities.

**Point 2.2.** draws attention to the **functioning of SMEs**, which have a number of specific features. In terms of their organisational characteristics, their management is rather lighter when deciding on behaviour in the market environment and development strategy. The benefits of their operation are determined by the savings achieved through the introduction of new products and their experimentation, economies of scale linked to the optimisation of series and those from product diversification, diversification and the resulting market effect. The business environment in which they operate is of particular importance to their vitality. It is determined by the specific conditions allowing them to be incorporated into the system of industrial links at different levels (mainly in terms of competition, suppliers and consumers). In contrast to large companies that have a strategy and experience of using their organisational structure, especially their subsidiaries, small and medium-sized enterprises. They therefore react by maximising their advantages in only one sector, embedded within the industrial relations of large firms and occupying specific niche and market segments.

**Point 2.3.** focuses on the **effectiveness of SMEs**. Most studies looking at the relationship between innovative practices and SME performance focused on the factors that improve this relationship under normal external conditions (e.g. Damanpour, 1990; Hajar, 2015; Lin pipe Chen, 2007; Ndesaulwa -Kikula, 2016; Rosenbusch, Brinckmann and Bausch, 2011). The survival of the enterprise is one of the characteristics of its presentation (Danes, Loy, Scoreboard Stafford, 2008; Kalleberg Leicht, 1986). The enterprise can survive if it can adapt to the



conditions and environment (Child, 1972; Pfeffer -Salancik, 1978). Compared to large enterprises, SMEs have shorter lives, more profitable and largely affected by external factors of the business environment (Carroll Huo, 1986). Some researchers consider survival as an objective measure of success in the enterprise (MINER, 1997).

Many studies confirm that external support received by SMEs to mitigate the effects of crises contributes to strengthening the link between innovative practices and company efficiency on the one hand and between innovative practices and business survival on the other.

The next **sub-point 2.4** is dedicated to **supporting SMEs** that are key to the economy in terms of employment, innovation and growth (Hallberg, 1999; Floyd, McManus, 2005). The previous quote can also be complemented by the statement that SMEs are a major source of entrepreneurial skills, creative dynamism and management flexibility to support innovation. But at the same time, these companies face market failures and have difficulties in securing resources, which can lead to foreclosure of new technologies or innovations. This makes support for SMEs one of the European Commission's priorities for improving economic growth, job creation and economic and social cohesion.

External support to SMEs can be direct or indirect. Direct external support usually takes the form of financial assistance to be used to acquire assets, purchase technology or implement development plans to address funding gaps. Indirect external support usually takes the form of advice, ideas and advice provided by experts, advisory offices and educational institutions to help close the knowledge gap and increase the amount of information available.

**Point 2.5.** draws attention to **entrepreneurship in SMEs**. Entrepreneurship is a process that aims to identify new opportunities and turn these opportunities into viable products and services. Over the past two decades, research on the importance of SMEs to the economy has consistently shown that the creation of new business has driven economic prosperity. In addition to playing a crucial role in increasing competition from emerging sectors, SMEs are crucial for economic growth and innovation capacity in many regions. Entrepreneurship is therefore a driving force in the economy, especially because of the innovative nature of entrepreneurs (Fuellhart and Glasmeier 2003; Maxwell and Stone 2004).

**Point 2.6.** presents the **characteristics and advantages of SMEs**. The rapid development of SMEs is also explained by their socio-economic advantages, which reflect the increased demands associated with emerging needs. SMEs exempt large organisations from small-scale manufacturing, ensure the finishing, testing and deployment of new products, better respond to the needs of small niche markets and a highly differentiated market. SMEs provide good employment opportunities and meet the individual expectations of the entrepreneur. These kinds of firms have certain organisational, managerial, economic and socio-psychological advantages, driven by a number of factors.

In organisational and managerial terms, the advantages of small firms are limited to a flexible organisational structure and democratic governance style. SMEs are dominated by informal links between the workforce employed and horizontal information flows, stimulate workers' initiative and rely heavily on their personal qualities and creativity.

**Point 3** of Chapter 1 addresses **key aspects in innovation management**. **Point 3.1.** focuses on the **management of innovation activity**. According to Peter Drucker, "Innovation is a real activity and can and should be managed just like other core corporate functions" (Drucker, 2002). Sustainable innovative development of businesses is impossible without effective management of the investment process, which makes it necessary to define the

management of innovation activity as a specific type of governance.

The author defines four main aspects of innovation management, namely skills, **culture, structure and strategy**. For the purposes of dissertation work, the management of innovation activity will be split and discussed separately for each of the key governance aspects.

*Innovation capabilities.* Capability is a generic term used to cover the different capabilities and resources the organisation has to create and manage innovation. The aspect of capabilities revolves mainly around people, as innovation relies heavily on the potential of both individuals and teams in the collective. It is primarily about the abilities, unique insights, know-how and practical skills of the people working for the organisation. A good example in support of the previous statement is Google's recruitment formula, and specifically the quote of Laszlo Bock, Senior Vice President, People Operations: "We hire for learning abilities and skills before recruiting for experience."

However, capabilities also cover areas such as information, technical, technological resources and intellectual and financial capital. All these factors may be necessary to create innovation.

There is a growing research interest on how company capabilities foster competitiveness, business practice and efficiency. This part of thesis defines innovation capabilities as a key element in increasing the innovation capacity of companies. It addresses the fundamental importance of theories for organisational training and knowledge creation and discusses how organisations transform individual insights and knowledge into collective knowledge and organisational capabilities.

A detailed and wide-ranging literature review of organisational learning is presented, pointing to the importance of social interaction, context and shared cognitive schemes for learning and knowledge creation.

*Innovation structure.* The difference between structures and capabilities is that structures allow for the effective use of these capabilities.

In practice, this means the organisational structure, processes and infrastructure of the organisation. The right structures can act as a multiplier of effort, allowing the organisation to work and innovate much more efficiently. Without the right communication channels, the right decision-making processes and the right infrastructure to implement ideas, very few of the ideas people imagine will actually see a white world. One of the most popular approaches to start creating a more innovative organisation is to work towards a so-called ambiguous organisation. This simply means that the organisation is structured in a way that allows the management of the innovation activity to be independent from existing management processes.

This part of the dissertation presents the variety of existing literature on the organisational structures of enterprises through innovation. Organisational design theories focusing mainly on the relationship between structural forms and the organisation's propensity to innovate are presented.

*Innovation culture.* If structures allow for the effective use of capabilities, culture is what enables the organisation to acquire people-related capabilities. With the right kind of pro-innovation culture, the company is much more able to hire and retain the right people in the organisation. An appropriate pro-innovation culture promotes the right type of behaviour and discourages the wrong species. As the effects quickly accumulate, culture can be of great

importance for the innovativeness of the organisation.

The innovation culture of a company is crucial as it determines whether and how quickly good ideas can be pursued.

The development of innovative business conduct is a top priority for both EU policies to ensure growth and equalise regional performance and national economic development programmes. At the heart of these policies and programmes is the need to build an innovation culture – as a sine qua non for creating comparative competitive advantages.

This part of the dissertation presents the most common features of innovation culture and provides a detailed literature review of the role of the structure in the process of enhancing the innovation capacity of companies. A three-dimensional model of innovation culture is presented: innovation activity in the company is largely driven by an innovation-friendly culture that includes both skills, readiness and opportunities.

It presents the main challenges in building and developing an innovation culture related to changes in the mindset of the organisation, in mobilising organisations as teams to rapidly bring new products and services to the market, and in bringing together an organisation to transform product and service initiatives into sustainable results.

It has been concluded that all approaches to developing, deploying and sustaining innovation require an increase in the skills of employees, but at the same time increased competences lead to technological innovation and thus bring the “loop” of continuous improvement to the benefit of companies’ growth.

*Innovation strategy.* Last but not least, it is the strategy. Simply put, the strategy is the plan that the organisation has to achieve long-term success. But what is critical to understand is that ultimately the strategy is to make a deliberate choice between a number of possible options in order to have the greatest chance of “victory” and this choice must clearly not be separated from implementation.

The link between innovation and the strategy is a rather broad topic, but innovation is in essence just one of the means of achieving strategic objectives. In today’s dynamic environment, innovation and growth of firms are increasingly being brought together as management concepts aiming at higher productivity and the production of more goods and services, ensuring economic growth.

The strategy, in turn, provides a basis for bringing together activities and decisions on the different strands of organisations in a targeted direction. The absence of a strategy prevents company management from formulating business models to ensure growth. Good strategies promote cross-division coordination within the organisation, clarify objectives and priorities and help focus efforts around their implementation.

This part of the dissertation presents the types of innovation strategies and provides a detailed literature review of the role of the strategy in enhancing the innovation potential of enterprises.

The **next subsection 3.2** focuses on **innovation management concepts**. Once it has been established that innovation management is a complex challenge, some of the more widely accepted theories, models and concepts related to innovation management need to be presented. The concepts presented in this section will be the basis for preparing proposals to increase the innovation activity of the enterprises included in the target sample of the survey.

**Point 3.2.1 deals with the virtuous cycle** of technology adoption was first presented by Geoffrey Moore in its 1991 book 'Crossing the Chasm'. It is based on the innovation diffusion study and explains why companies with disruptive innovative products (and/or technologies) often struggle to succeed with the mass market. This concept is very closely linked to the innovator's dilemma.

**Point 3.2.2.** presents "The three horizons of growth, a theory created by McKinsey Airport Company, is a fairly popular model to help organisations structure their initiatives and find the right balance between short- and long-term projects in their portfolio. The basic idea of the model is very simple: for a company to maximise its growth potential, it needs to work simultaneously on projects within the three horizons – 1 horizons from 0 to 1 year, 2 horizon of 1 to 3 years and 3 horizon over 3 years. In finding the right balance, companies will not only maximise their growth potential but also reduce the risk for business.

**Subsection 3.2.3 deals** with Rule **70-20-10**, originally introduced by Google's former CEO Erik Schmit, the 70-20-10 rule is a simple rule for allocating resources between the 'core of business', 'nearby areas' and 'innovative things', often referred to as 'transformative'.

**Point 3.2.4 presents a risk assessment in innovation management**, noting that the risk of abandoning improvements in nature means that if a firm continues to operate in the same way and do what is always the rules, it is time to fail.

**Subsection 3.2.5.** describes the **life cycle of innovation**. Any innovation, whether gradual or disruptive, goes through a number of and quite similar phases in their lifecycle. For the purposes of the study, we will call them:

Search → Construction → Stepping → Deployment → Maintenance

These phases cover all aspects of innovation, ranging from a simple idea to its construction and commercialisation, as well as building a business from it and then maintaining it for as long as there is application and demand. Indeed, the length of this period can vary from months to years or even decades, depending on the type of innovation in question.

**Point 3.3.** is dedicated to the **general processes for managing innovation activity**. Regardless of all circumstances, effective innovation management requires a science-based governance model for innovation.

Depending on the orientation of companies, two models of innovation management can be considered, namely Butane and Download.

Models based on push *to* innovation are more internally and technologically oriented. Organisations applying these models are aware of the challenges of the market and consumers and are simply looking for the best ways to address these challenges, usually with new technologies. Classic examples of such organisations are Apple and virtually all pharmaceutical companies.

Theglene based models, on the other hand, are more customer-oriented and market-oriented. Theglene-oriented *organisations* are looking for ways to adapt to changing markets and customer demand. In this way, they tend to focus more on listening to customers, learning from them and fast movement.

The *Phase – Porta (or Stage – Porta)* model is perhaps the most famous process for managing product innovation since the 40s. The process is based on the undeniable fact that

there are always more innovative ideas than investment resources. The essence is that any idea has to go through certain pre-defined Phases in its development. At the end of each Phase there is a 'Port'. When the idea reaches a "Porte", it will be assessed using defined pre-defined criteria. If the idea is able to meet the criteria, it will receive additional investments and be able to move to the next phase.

*Lean Startup* is a product and business development methodology that focuses on fast moving and testing real life innovations to minimise the risk of developing something that does not work or does not fit the market. *Lean Startup model's* main idea is the rapid testing and validation of innovative ideas from the point of view of the target market to ensure faster adaptation.

In these parts of the theatre work, attention is also paid to methods for *measuring the effectiveness of innovation*. The author considers that, in order to make the most efficient use of innovation performance indicators as a tool to improve innovation performance in organisations, it is necessary to define input and output indicators for each of the four key aspects of investment activity, namely: Opportunities, Structure, Culture and Strategy. This ensures the conditions for complex optimisation of the management of innovation activity in the company as a whole.

**Point 3.4.** focuses on the **main challenges in managing innovation**. The main challenges are again addressed in the light of the four key aspects of innovation, namely lack of opportunities, suboptimal organisational structure, inadequate culture and lack of strategy and focus.

**Point 3.5.** presents the **key success factors in innovation management**, according to the author. Key success factors describe best practices for innovation management and are essentially measures to address the challenges of the previous bullet point, based on the investment management concepts and models presented so far.

*Continuous improvement.* Success in innovation management involves continuous improvement, both as a company and at a personal level. In order to achieve a culture of growth, companies must constantly concentrate on improving all aspects of innovation management, both for individual employees and for the organisation as a whole.

*Value creation.* One of the most important success factors in innovation management is the ability to constantly rethink how to work to create as much value as possible. In order to achieve this goal, it is important for companies to have a good knowledge of their customers so that they can meet their needs and focus on creating the greatest possible value for them with innovation.

*Lean Startup.* Overall, speed is essential when it comes to innovation. *Lean Startup* is an appropriate framework for a number of reasons, but the key reason for success is the focus on the speed of a feedback cycle: *Build-Measure-Learn*. Instead of planning a new business model for years, the company uses *Lean Startup* technology, which highlights the speed and urgency of looking for and executing ideas and is designed to deal quickly with market risk.

*Allocation of resources.* Each organisation must be clear and targeted in terms of resource allocation, especially for larger companies. For a firm to be successful, they need to identify and assess their risk appetite, the desired level of return on investments and the timing by bringing together these elements to create a strategy that is in line with the company's business objectives.

*A great culture and a world-class team.* For its part, effective management of business

innovation is impossible without an innovative ideology, which is a mechanism for implementing management and organisational processes in constant unity, allows for the formation of an innovative development strategy and gives a common vision to collaborators. The aim of the impact of innovation ideology is universal across all production structures and is achieved by developing in collaborators a clear understanding and understanding of innovation development, sustainable perceptions and behaviours and value orientation.

*Focus.* Just as a lack of focus is one of the key challenges preventing innovation, remaining in focus is one of the key success factors for its creation. Many companies make the mistake to engage in too many tasks and to lose focus on what actually works and what really matters in the long term. To ensure maximum growth while maintaining focus, organisations need to focus on activities for which they have a realistic chance of becoming the best.

**Paragraph 4** deals with the **impact of innovation on growth**. In today's dynamic environment, innovation and growth in the well-being of firms and society are increasingly being brought together as governance concepts leading to higher productivity and the production of more goods and services, ensuring economic growth. Innovation contributes directly to the prosperity and well-being of both people and society as a whole (Baltov, 2013). Innovation underpins human development, although it is dominated by the technocratic vision of innovation, which sees it only as a product of industrialism (Fagerberg J., D. Mowery, R. Nelson, 2005).

As a key measure of the state of social life, well-being can be used as an economic concept that exceeds GDP. Well-being includes aspects for the population and the economy such as income and opportunities to consume goods and services, safe and healthy lifestyles, access to and quality of healthcare and education, life expectancy, leisure time.

This part of dissertation work has implemented the dynamics of change in the main components of society's well-being between 1800 and 2010, which spans the four industrial revolutions. As a conclusion from the information provided, it can be seen that the technological leap caused by the invention and introduction of innovation in industry always leads to an increase in welfare for society in the long term, measured by:

- Growth in global GDP per capita, which has increased by 23 times over the period under study (on an equivalent basis to 2011);
- Life expectancy for the period studied increased by 245 %;
- The length of the working week decreased by 49 %.

Significant dynamics of these welfare measures have been reported since the industrial revolution of 3 and 4, which is due to the effect of an accumulation of technological innovation and improvement.

Based on the literature review and the results of a 2019 McKinsey Global Institute study, the proposition of a link between innovation and the profits of companies that ensure growth for both organisations and countries is demonstrated at this stage of dissertation work.

**Point 5** aims at showcasing ways of **stimulating the innovation potential of enterprises**. This part of the study presents an authoritative conceptual model for turning innovation into a competitive advantage for businesses.

Points **5.1. to 5.4** affect organisational design in modern conditions and specificities caused by the increasing complexity of managing organisations, the need to apply scientifically

sound methods to perform management functions, and the specialisation of management activities. A comprehensive analysis of the internal structure of the organisation, carried out using a systemic approach, is presented.

The open systems model, including input, transformation process and exit, is integrated into the Michael Porter model for the “Five Competitive Powers shaping the Strategy”, presenting the main elements and principles of interaction and complementarity of the two concepts through the enterprise’s innovation activity.

In order to comprehensively and comprehensively assess the influence of the environment on the company’s operations, the limits of the external impact to the resulting common model beyond the boundaries of the particular industry are broadened and include global factors influencing the competitive environment. As global actors, the author defines and defines the following:

- The impact of macroeconomic factors in shaping the business environment;
- State regulation of the economy;
- The impact of innovation and technology;
- Influence of consumer expectations.

For each of the identified global factors building on Michael Porter’s model for “The Five Competitive Powers shaping the Strategy”, the author presents theoretical aspects of:

- The interaction between the national market economy and business.
- The interaction between the state and the business.
- The impact of innovation and technology.
- Influence of customers’ expectations.

In **paragraph 5.5**, the author, on the basis of expert judgement, has **identified the factors for successful innovation**.

**Point 5.5.1 presents** the first factor, namely **an effective compilation of data, analyses and sectoral expertise**. The effective implementation of innovation management functions, which are intrinsically linked to the functions of production management, requires the ability to predict and analyse innovation activity with practical value. The effective organisation of innovation management functions is largely determined by the availability of the necessary **data** at the right time, analytical capabilities **and** the availability of **industry expertise** on processes in the particular business.

The availability of a vast amount of available information, analysis, research, articles, statistics, forecasts and other specialised literature, together with the current analytical capabilities resulting from the development of machine learning, make it possible to complement sectoral expertise to increase the innovative performance of companies. Industry expertise itself is also evolving as a result of the increasing amount of data and the possibilities for processing and analysing them.

Effective pooling of data, analysis and industry expertise enhances innovation capacity throughout the innovation cycle and throughout the innovation lifecycle by helping to improve key aspects of innovation: capabilities, structure, culture and strategy.

**Point 5.5.2 deals with** the second factor **Concentration and coherence of innovation**

**value.** This strand is inextricably linked to companies' innovation culture. Coherence of commercial value encompasses written and unwritten values, norms and attitudes in an organisation that influence the way employees think and act. Each circumstance in the companies must have the same value for both the owner and/or manager and the employees of the latter level is the hierarchy.

This part presents the types of organisational cultures and their dependence on the individual complexity of the technologies on the one hand and the variability of technologies on the other hand. The author has applied methods to create an innovation culture to support innovation.

The next **bullet point 5.5.3 presents** the next factor: **Continuous development of competences for the development and improvement of innovation capabilities.** Today, possessing strong innovation capabilities is essential to thrive in a technology-driven world. As many jobs have the potential to be automated, people need to understand how they can add value to organisations and learn the necessary thinking and tools to use. Innovation skills are the abilities people need to have in order to provide significant value for the innovative performance of a company. These skills are indispensable in the design and improvement of the organisation's products, capabilities, processes and strategies.

The basic innovation skills are presented, namely:

*Discovery skills include* finding facts and obtaining information of exceptional value and importance to the company.

*Communication skills (networking).* In business, networking is the ability to create mutually beneficial relationships with other organisations, customers, suppliers and other entities with business experience that can significantly contribute to the company's growth. Building and maintaining professional relationships with other companies gives organisations access to sectoral expertise.

*Conceptual skills.* Innovation is impossible without ideas. Therefore, the ability to think many of them, especially when confronted with challenges and opportunities, is considered a skill.

*Selection skills.* Identifying ideas worth pursuing is an ability that organisations need to develop in order to save time and resources.

*Performance skills.* This type of estate aims to foster trust and confidence with business partners, customers and other parties with whom businesses have a professional relationship.

The presentation of the factors shall continue **in subparagraph 5.4.4., with continuous improvement of work processes.** Continuous improvement is part of the management of all systems and processes. In order to achieve the highest levels of productivity, an organisation needs a well-defined and equally well implemented approach to continuous improvement and learning. The concept of "continuous improvement" refers to both incremental and breakthrough results. Improvement and learning must be organically embedded in the organisation's activities. This means that they must become a mandatory part of the daily work of an organisation that seeks to eliminate the causes of an identified problem, seeks opportunities for improvement, as well as potential issues that need to be addressed before they occur.

This section also presents the types of improvements that bring value to the customer and



business.

Continuous improvement of work processes also requires the construction of an adequate and effective organisational structure to support innovation and, in this respect, represents the types of organisational structures and their dependence on the individual complexity of the technologies on the one hand and the variability of technologies on the other. The author has applied methods to build innovation support structures. Modern trends in the development of the types of organisational structures are also presented.

The next factor for successful innovation is presented in **point 5.5.5 and** is to turn **innovation strategies into a vector for the future development of companies**. The innovation development strategy, as part of the overall socio-economic strategy, is defined as an innovation strategy. An essential characteristic of the innovation process is its focus, development in a strictly defined and predetermined direction. This premise follows the need to recognise the strategic thinking of company management and the manageable overcoming of barriers that lie on the path of innovation. However, empirical research into the behaviour of innovative companies shows that such a rationalist and “government-oriented” approach has limitations and does not fully take into account the real situation of innovation initiation, where there is often an element of spontaneity.

The choice of type and the creation of a strategy is the key to the success of innovation. The design of innovative transformations ensures a certain consistency in the selection and implementation of an innovative strategy: from setting targets to their practical implementation. An innovative development strategy is a set of objectives and targets, decision-making rules and ways to progress a company from its current position in a new state, based on the introduction of innovation and positioning the company in competitive markets for goods and services.

The whole variety of innovative strategies, the author has combined into three conditional groups:

*Offensive* – aimed at developing new technological solutions to implement a growth strategy in the form of market entry or diversification. This type of innovation strategy is characteristic of companies that base their activities on the principles of entrepreneurial competition.

*Defensive* – aims to maintain the company’s competitive position in existing markets. The main function of such a strategy is to activate the cost-benefit ratio in the innovation process.

*Imitation strategy* – used by firms with strong market and technological positions. The imitation strategy is used by companies that are not pioneers in bringing certain innovations to the market.

This bullet point presents proposals for concrete steps to develop and implement an innovative strategy by SMEs.

**Point 5.5.6 applies the availability of effective educational structures and innovative learning.** Education for innovation requires a new approach to training, which includes a personal approach, the fundamental nature of education, creativity, creativity, essential and actual approaches, professionalism, dual culture synthesis (technical and humanitarian), the use of the latest technologies. This section presents the main directions in the development of education to equip business with the necessary innovation capabilities. The innovative learning strategy implies a conscious systemic organisation of the management of the

educational process based on four elements.

**Point 5.5.7 presents the availability factor of effective Competency Centres (CCPs).** CCPs are defined as structured, long-term cooperation for research and innovation in strategically important areas between academia and industry with frequent interactions with the public sector. CCPs shall focus on strategic research programmes, maintain strong science-industry interactions and provide truly collaborative research with a medium to long-term perspective' (TAFTIE, 2016). CCPs are joint industry-led and industry-led organisations funded by highly qualified researchers affiliated to research institutions that are authorised to undertake market-focused strategic research for the benefit of industry. The aim of the CCP is to achieve a competitive advantage for the Bulgarian industry by accessing the innovative capacity of the research community and strengthening cooperation between universities and industry, thereby speeding up the innovation process leading to economic growth.

**The availability of effective Innovation Hubs** is the next factor presented in **point 5.5.8.** The competitiveness of the modern economy depends to a large extent on the number of innovative developments and their introduction into production. This subsection sets out the principles for the operation of innovation hubs and the support they provide to the innovation activities of enterprises. An analysis of international experience has shown that innovation centres based on universities and research centres are able to ensure effective implementation of the innovation potential and contribute to the development of the entire national economy.

This is followed by **the availability of efficient Business Incubators**, presented in point **5.5.9.** A business incubator is an institution that provides technical or financial support to start-ups, especially those looking for resources for expansion. In other words, a business incubator is an entity that offers advice and funding to entrepreneurs. Even provides you with resources as physical places where you can develop your business. Initiatives for accelerators and incubators that focus on start-up and scale-up of technology firms are included.

The last factor described and analysed for successful innovation activity is **the Automation of Knowledge** applied in point **5.5.10.** Two important trends are changing the way knowledge is done in organisations:

- The emergence of new ways to reach and engage workers;
  - Automation of knowledge through machine learning and other technologies;
- Both trends will have critical implications for business and are of particular importance for manufacturing and services firms.

New technologies are changing the way organisations acquire talent and implement their processes. "Talent clouds" make it possible to engage people everywhere in the world. Machine learning and other technologies make it possible to automate working with knowledge, save time, reduce costs and improve quality. These trends will unconditionally shape the future of knowledge work.

Section **5.6 sets out the State's commitment to improving the innovative performance of firms.** In essence, governments can promote innovation in four main ways: by buying them, reducing risk, cooperating in their development and using standards or regulations to promote it. The functions of the State in these areas are described and analysed in detail. In addition, successful examples of government support for innovation such as the European Innovation Council (EIC), Tech Nation UK Upscale, Dubai Smart City Accelerator, Government R & D expenses, R & D tax relief, Cooperative Research are also presented.

**Paragraph 6** focuses on the impact of **innovation – an opportunity or a threat**. Innovation linked to technological improvement is not a new phenomenon, but fears about their role in the transformation of occupations and the impact on employment date back to centuries, even before the industrial revolutions of the 18th and 19th centuries.

Based on a May 2019 McKinsey Global Institute study, it can be argued that three types of technological innovation will have the most significant impact on all the areas of well-being considered in the coming years, namely Big/open data and Artificial intelligence, Connectivity and platforms and Robotics.

In a study "Jobs lost, jobs gained: Workforce transitions in time of automation "of December 2017, McKinsey Global Institute estimates that, depending on the speed of innovation worldwide by 2030, between 75 and 375 million workers may have to change jobs, which will require retraining and changing lifestyles. So far, history also knows other similar labour market transformations linked to industrial revolutions, such as the transition of workers from agriculture to industry in the early 20s.

The disruptions that technological transitions create are real, but innovation can also be used to improve individual and societal well-being and mitigate transition risks. Government and business have many combinations of positions from which to choose from. Four scenarios of government and business behaviour to promote innovation while preserving stability in labour markets have been considered in the report, but in order to achieve all the positive effects on well-being in parallel, governments and businesses need to focus their joint efforts to use technology to improve people's lives. In the report, this scenario is referred to as "Better Life Technology".

Technologies alone do not have general and specific objectives, and their influence and implications are determined by human choices and actions. Human choice is a social and emotional skill requiring significant cognitive abilities that machines are difficult or impossible to reproduce. It is this fact which also leads to the conclusion that the demand for social and emotional skills will continue to grow almost as rapidly as the demand for advanced technological skills. Automation will also stimulate the need for a higher level of cognitive skills in workers, especially critical thinking, creativity and complex information processing. Jobs and workflows will change as more people will work together with machines. This will be a challenge both for individual workers who need to be retrained and for business, which needs to be made more adaptable.

## **CHAPTER 2. METHODOLOGICAL TOOLS TO SHAPE, STIMULATE AND DEVELOP AN ENTERPRISE'S INNOVATION ACTIVITY**

Section 7 presents the **methods, approaches and activities** for conducting the dissertation study.

The empirical analysis uses the research on SME innovation activity in the SEG and the UPR, which was carried out in implementation of the project 'Regional indexation of innovation activity in sectors of the economy (irisi) – scenarios to the four priority thematic areas for smart specialisation identified in the ESIS and their place in the circular economy'. The survey was conducted in the period 28.01-12.02.2020 using the direct standardised interview method at the respondent's workplace. The target groups are companies with and without innovative activity from the South-West region (Yuzhen sad) (Sofia city, Sofia district, Pernik, Kyustendil and Blagoevgrad) and South-East region (JIR) (the provinces of Burgas, Stara Zagora, Sliven and Yambol). The sample was based on 151 interviews, i.e. 151 number of SMEs.

The target group identified for the Quantitative Questionnaire is SME owners and managers in the UPU and SER. As the aim was to gain information about the innovation activity of firms and to anticipate future trends in this regard, it is logical to seek the necessary information where the management of the overall complex business of companies is carried out, namely among managers and shareholders who set the pace of work and growth. It is presumed that the development of the potential and efficiency of their organisations or companies in general, including the setting of performance standards, the choice of the organisation's innovative strategy and the provision of the necessary competences and specialisation to ensure the successful implementation of such a strategy, depends on the understanding and vision of the strategy of innovation development and the efficient functioning of firms in general in a context of global competition.

The toolkit used is a survey in the form of a system of targeted questions to which respondents need to answer on the basis of structured answers. This allows for targeted analysis using a specific methodology for processing the results.

The survey is structured in 12 sections, namely:

- Company information;
- The innovative nature of business;
- Process innovation in the activity;
- Cooperation in innovation activities;
- Business innovation in the activity;
- Marketing innovation in the activity;
- Changes focused on the existing business model;
- Common processes and practices;
- Drivers of innovative activity in the enterprise;
- The environment in which the enterprise operates;
  
- An indicator of the enterprise's business efficiency and profits;
- Training and counselling.

In the context of the theoretical framework and the literature review, the questions in the study were categorised by the author according to the key aspects of innovation activity and the necessary conditions to increase the innovation capacity of enterprises. One of the main challenges in processing, analysing and interpreting the responses received is to systematise them on the basis of aspects of innovation change and their design, based on scientifically sound and practically validated evaluation methods. In this regard, the methodical apparatus of the study was focused on:

- A literature review to take stock of global theory and monitor leaders' practice in innovation presentation;
- Method of elevation from abstract to concrete. Its specific application consists of the conditional division of the object of the study into key aspects, the description of its properties using different concepts and characteristics, its transformation into a set of abstracts fixed by thoughts, unilateral definitions fixed as designs to each aspect;
- Method of idealisation. This method has been used to simplify complex systems and processes such as innovation presentation, which makes it possible to exclude from consideration those properties and relationships of objects that hinder the understanding of the substance of the research process. To this end, an ideal subject to the highest

possible innovation performance, based on the key aspects of innovation and its structures, has been built;

- Method of formalisation. The concrete application of this method consists of displaying the content and structure of the innovative representation of the SMEs surveyed by using mathematical symbols and formulae to determine the degree of representation of individual structures. Using estimates related to the calculation of private indicators and the calculation of an integral factor characterising the level of innovative activity;
- Modelling method. The application of this method in dissertation work consists of constructing a model of research object (innovative presentation of the SMEs studied) and exploring its properties on the basis of the model designed;
- Induction method. Its specific use is linked to the need to develop theoretical knowledge based on empirical data. As part of this method, a significant number of research into scientific literature and practical experience has been carried out in theatre and then, on the basis of basic recognitions, has been systematised and brought to the Innovative Presentation Matrix;
- An expert assessment method (rating, the method of competent judges) is a variant of indirect observation, which the author combines with the survey in order to quantify the value of the innovation performance measures.

The dissertation study shall be based on theoretical, methodological and applied positions on the design and development of the company's innovation management system, taking into account global scientific experience and effective management practice.

The research in the dissertation was carried out on the basis of scientific papers by economists and researchers dealing with innovation management issues. Material from scientific and practical conferences on innovative business development has been used in the work process. A system approach, analytical method, benchmarking methods and modelling have been used to address the tasks set. The mathematical basis of the calculations and conclusions are the methods of multi-criteria analysis, expert judgement.

The objectivity and reliability of research and conclusions in dissertation work are ensured by the author's chosen set of scientific methods used. Comparison, classification and grouping methods have been used as part of the codification of the data received.

The office study in the dissertation study shall cover: familiarise themselves with the established theory in the literature, analyse similar studies carried out in different countries, analyse scientific reports and articles, business studies, discuss conference results and publications in specialised journals.

An important argument in favour of a quantitative approach is that, as Blaxter points out, 'quantitative studies are verifiable and continued in the future' (Blaxter et al., 2001: 79). In other words, this study can be repeated after several years and monitor and measure the development of SMEs' innovation capacity through the perspective of the four main aspects of innovation, as well as the very internal organisational capacity of companies in Bulgaria, in accordance with EU directives, technological, political, economic and social factors in the country, and it will also be possible to measure the evolution of these indicators over time, including by applying the scientific achievements of the current dissertation work.

Statistical analysis is mostly oriented towards the use of one-dimensional distributions on individual issues, key characteristics of frequency allocations and their interpretation.

The field research carried out included carrying out surveys with SME owners and representatives of local and central government in the country, relevant to the innovative activity of enterprises.

Quantitative analysis implies a numerical definition and definition of the main measures of SME performance based on the main aspects of innovation activity. For some measures, subjective methods were used to determine estimates on the basis of the expert evaluation method. Through this method, the SME performance studied is assessed on the basis of the expert opinion of the author, who expresses his own views and opinions.

For each individual question, as well as for the set of questions concerning the relevant aspects of innovation, an Integrated Integrated Assessment (ICA) has been defined. For the identification of CIS as part of the questions, the idealisation method shall be applied by building an ideal target of maximum innovation performance, based on the main aspects of innovation and their design. On the basis of the CIP, the general presentation of SMEs on the different aspects is also determined and the disruptions are identified by the ideal model, which is calculated as the sum of the maximum scores of each question, set of questions and aspect as a whole.

In this part of the dissertation work, only the common baseline methodology for determining the CBR for common types of questions has been applied on the basis of structured answers, and the individual and specific methodology for each question will be disclosed in parallel with the presentation of the results of the survey in Chapter 3.

Another study used in the empirical analysis is the evaluation of Bulgaria's innovation performance in the EU Innovation Scoreboard 2019. The annual European Innovation Scoreboard (EIS) provides a comparative assessment of the research and innovation performance of EU Member States and selected third countries, and the relative strengths and weaknesses of their research and innovation systems.

It helps countries assess areas in which they need to concentrate their efforts in order to boost their innovation performance.

**Point 8** of Chapter 2 focuses on **enhancing the internal capacity to innovate** by shaping, stimulating and developing an enterprise's innovation activity. Innovative development is closely linked to new business principles based on the synergy of centralised and decentralised structures. The specificity of innovative development lies in the fact that it is based on the need to take account of two contradictory trends.

On the one hand, the innovation process is a single stream of emergence, deployment, development and deployment. All stages of the innovation system – from fundamental idea to market success – are closely interlinked and interdependent. Therefore, in order to ensure the effectiveness of innovative development, systemic structural interactions are essential to ensure the continuity of phases and continuity of processes over time. This trend is clear in the context of an undeveloped market infrastructure and imperfection of market mechanisms.

On the other hand, scientific knowledge, discovery, industrial invention are inherently discrete and sophisticated. Numerous studies have identified a lack of correlation between the emergence of scientific knowledge, its materialisation and commercialisation. From this point of view, therefore, an undertaking does not necessarily have to carry out a full range of innovative entrepreneurial activities, from the research and development stage to marketing and

distribution.

In the context of the improvement of market mechanisms, according to the second trend, inter-company interactions have started to play a particular role, i.e. diversification processes, inter-company cooperation, etc.

In order to increase innovation activity, these two trends are of paramount importance: the formation of innovative organisations capable of self-developing and increasing the incorporation (i.e. incorporation) of innovative structures into the system of different institutions and inter-company interactions.

Understanding an enterprise as the most important structural element of the economy is the key feature of the paradigm of innovative transformations. It has two main functions of the company as an element of the macroeconomic system: manufacturing and integration.

In the former case, the company is defined as an organisationally sound, complete and independent techno-economic system separated from the environment, concentrating resource flows and directing them to production processes. At the same time, the company focused on reproducing economic links and internal relationships at the level of macromicro-interactions of the system.

The integration function is seen in the context of flows of raw materials, information, financial, technological, labour resources as a key intersection. At the same time, the company reproduces economic links and relations with other elements of the macroeconomic system (with elements of the external environment). As an element of a more global system, the format realises and reproduces macro-, micro-interactions and relationships.

The process of innovative development is multi-functional and multi-stage. Innovation management is designed to coordinate actions in the operation of a complex site, such as the process of reproducing the means of work, as opposed to the movement of its independent components. The intermediate or life cycle stages of innovation shall act as such independent components. This is due to the specificities of each of the stages. For example, insufficient consideration of the dominant position of consumption in a market economy leads to the existence of a disconnection in the implementation of individual stages of the innovation process. This is reflected, first, in underestimating the positive or negative effects of an intermediate stage of the innovation process on another when optimal results are achieved and, second, in the almost complete lack of consideration of the probabilistic nature of innovation developments over time and the significant risk associated with this in obtaining the expected results.

This part of the dissertation work presents the innovation replication cycle separately and in combination with the innovation lifecycle according to paragraph 3.2.3. of this dissertation and accordingly applied the Schmit rule (paragraph 3.2.3.) of allocating resources between the “business core”, “nearby areas” and “innovative things”. This provides a form of guidance for business in managing innovation development.

Innovation management functions that are intrinsically linked to the functions of production management as a whole and include:

- An analysis of the undertaking’s external and internal environment;
- Development of a strategy;
- Management of R & D;

- Development and production management;
- Sales management.

Financial and organisational support measures for innovation are presented in terms of specific forms of budget planning for individual production units and the implementation of the organisational functions of innovation management.

The company's special role in linking macro- and microtechnological development is analysed. Its technological and structural policies, selected sources of funding, must be combined with the state's industrial, tax, investment and monetary system.

The objects of innovative activities in this area (management improvement sites) are usually the company's management structure, the staff working system, marketing, management methods and organisation of employees' management work, the use of modern information technology based on advanced computing and communication tools.

The innovation cycle in the field of governance includes the conduct of research, development, their application (exploitation) and the monitoring of the results of the application.

Efficient production organisation requires stable technologies and synchronisation of operations, which can be achieved on the basis of large production systems. The same strict requirement is a flexible system of organisations and a focus on the response of the mobile market. Modern entrepreneurship is subordinate to the tasks of developing and deploying new technologies and rapidly renewing products based on the reduction of obsolete industries.

Innovation management must be understood to mean, on the one hand, innovation management in all areas of activity, an overall rationale for the innovative solutions adopted, on the other hand, the management of the creative and innovative activities of employees. Innovation management has a significant role to play in the motivation of employees' innovative activities, especially material motivation.



### **CHAPTER 3. RESEARCH ON THE INNOVATIVE PERFORMANCE OF BULGARIAN ENTERPRISES.**

Chapter 1 of this thesis has already presented 4 main aspects of innovation activities: capabilities, structure, culture and strategy. In this section, an analysis of the results of research into the innovation activity of companies in the South-East and South-West regions will be carried out and presented, based on key aspects of innovation activity, with the aim of preparing an evaluation of the innovation management system and disclosing the interlinkages between its aspects in the enterprises studied.

Section 9 provides an **analysis of Bulgaria's innovation performance in the EU Innovation Scoreboard 2019**. The annual European Innovation Scoreboard (EIS) provides a comparative assessment of the research and innovation performance of EU Member States and selected third countries, and the relative strengths and weaknesses of their research and innovation systems.

In the period 2012-2019, according to the EDIS, Bulgaria's innovation performance was constantly assessed as unsatisfactory, as the country is always ranked in the group of dire innovators and the specific position is either last or penultimate.

For the purposes of dissertation work, a direct link has been established between innovation and the growth of companies, which is a major factor leading to an increase in the Parties' Gross Domestic Product. We can find confirmation of this linear relationship in the EUDS for the year 2019, where Bulgaria is located in the nearby 27 place out of 28 participants (EU28). Figure 1 provides a ranking of the performance of EU Member States' innovation systems, which is compared with the GDP per capita (PPS) indicator. As the information provided shows, the direct correlation between the performance index of EU countries' innovation systems (EU28) and Gross Domestic Product in Purchasing Power Standards (PPS) is clearly apparent. Innovation stimulates the growth of firms and, as a consequence, increases their production, which provides additional income for companies, some of which they allocate to workers, who in turn increase the consumption of goods in the country whose production also needs to be assured as a result of either innovation or the expansion of production capacity.

This view is confirmed by the fact that innovation leaders score significantly higher on average by groups of Gross Domestic Product in Purchasing Power Standards (PPS) compared to Strong Innovators (+ 28 %), Moderate Innovators (+ 89 %) and Threatened Innovators (+ 165 %).

Graph 1

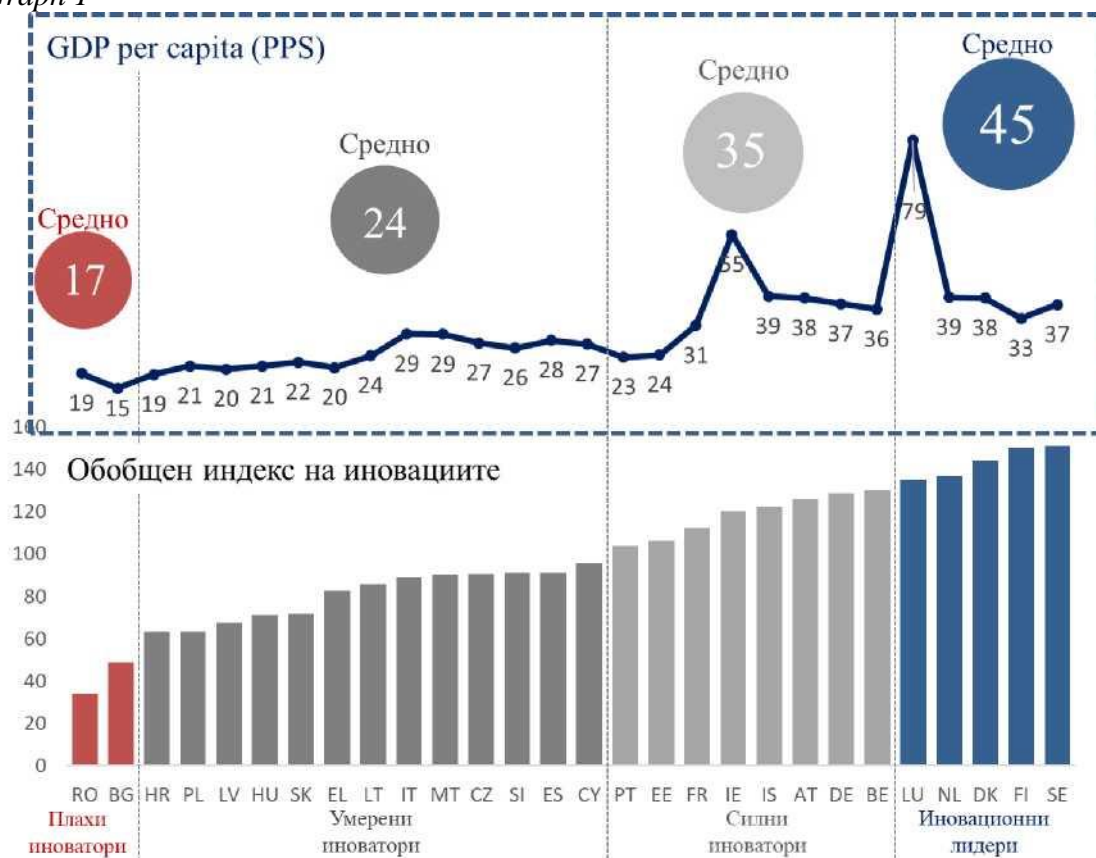
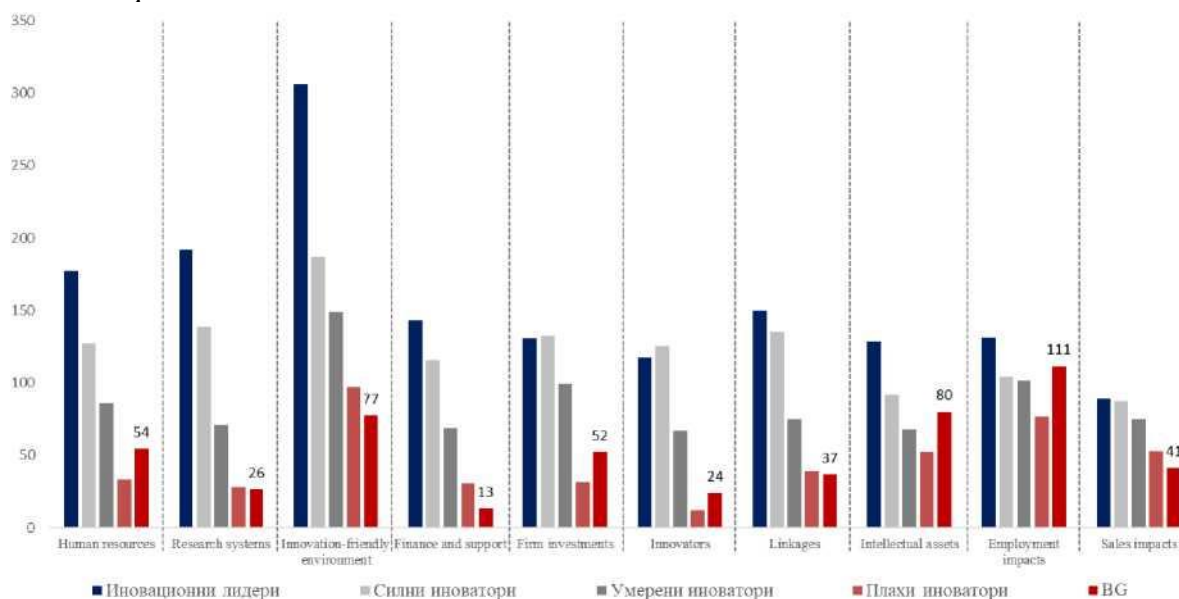


Figure 2 presents a comparative analysis of the results of the EDIS by country groups and survey indicators. On the basis of the information provided, it can be concluded that performance indicators reflecting human resources, R & D and funding are to a large extent decisive for the overall classification.

Graph 2



The assessment of the performance of human capital, R & D and innovation funding systems is extremely negative. For the other scoreboards, the country is catching up and even

outpacing moderate innovators.

Based on the results of the EDIS, we can conclude that Bulgaria's innovation performance for the period 2012-2019 confirms the absence of the necessary conditions to ensure R & D and innovation based growth for firms. Table 14 shows Bulgaria's rankings for the period quoted for the main areas of the EDIS.

*Table 2. Place of Bulgaria in ODIES*

N	Areas	2012	2013	2014	2015	2016	2017	2018	2019
1	<b>Summary Innovation Index</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>27</b>
2	Human resources	28	28	28	27	26	26	24	26
3	Research systems	24	24	28	28	28	27	28	28
4	Innovative friendly environment	25	25	25	25	26	26	26	27
5	Finance and support	17	25	26	27	27	27	28	28
6	Firm investments	26	26	27	27	25	25	27	27
7	Innovators	27	27	26	26	26	26	26	26
8	Linkages	27	27	28	27	27	27	27	27
9	Intellectual assets	20	11	8	8	11	15	15	15
10	Employment impacts	16	15	15	14	12	10	9	10
11	Sales impacts	27	27	28	27	26	27	26	26

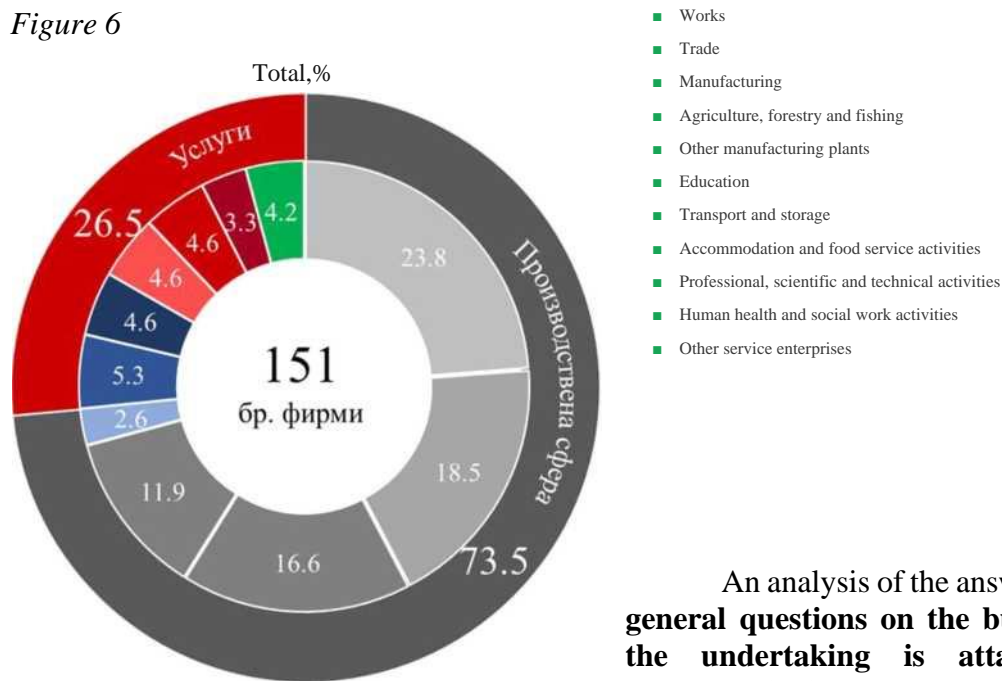
Section 10 provides an analysis of the results of the **research on SME innovation activity by the JIRC and the UPR**. For an objective assessment of the innovative performance of the SMEs surveyed and the identification of internal reserves to enhance innovation performance, the survey questions are grouped by the author into four strands based on their relevance to the aspects of the innovation activity as well as the possibility of influencing their aspects and/or structures. A separate block identifies general questions intended to identify the characteristics of firms.

The quantitative approach is based on information from a tailor-made questionnaire for an interview of SME owners, but focuses on those issues that are pre-linked to innovation aspects.

The survey was conducted in the period 28.01-12.02.2020 using the direct standardised interview method at the respondent's workplace. The target groups are companies with and without innovative activity from the South-West region (Yuzhen sad) (Sofia city, Sofia district, Pernik, Kyustendil and Blagoevgrad) and South-East region (JIR) (the provinces of Burgas, Stara Zagora, Sliven and Yambol). The sample was based on 151 interviews.

Figure 6 shows the structure of the sectors of activity of the enterprises surveyed. As can be seen from the attached information, the vast majority of respondents come from the manufacturing sector – 73.5 %, the remaining 26.5 % in the service sector. As mentioned so far in dissertation work, it is in the manufacturing sector that the most important opportunities to increase growth by creating and deploying innovation are recognised.

Figure 6



An analysis of the answers to the **general questions on the business of the undertaking is attached in paragraph 10.1.**

From the responses provided by the companies, it appears that they appreciate the environment in which they operate as highly competitive, measurable with very high price competition, similar products of different companies and reaction by competitors to the initiatives taken. 70.5 % of respondents confirm with a positive answer (rather YES and definitely YES) the existence of the competitive turbulence described.

The majority of respondents (54.3 %) define the market as turbulent, which is measured by frequent changes in customer preferences, consumer demand for new products at all times and the changing needs of buyers other than the market.

Respondents gave 55,4 % positive responses for the availability of technological turbulence of the environment in which they operate, which is linked to the rapid change in technology, the accelerated development and deployment of many modern technological products and the increased activity to change the sector.

The data presented clearly illustrate the tendency for SMEs in Bulgaria to operate in a context of strong competition, rapidly changing customer preferences and accelerated technological development leading to uncertainty, which is a key feature of the modern business environment. The way in which the SMEs surveyed react to uncertainty in the markets is also interesting. Actions involving the use of traditional cost leadership approaches and maximising the opportunities of existing technologies and processes are clearly distinguished from the participants' responses.

76.2 % of companies surveyed confirm their ambition to maximise the recovery of raw materials, 69.6 % rely on longer product reparability and 52.3 % apply recycling of the raw materials used. It is striking that there is a high proportion of responses without a clear assessment of the recycling of raw materials and materials (32.5 %), which may be due to a lack of knowledge of the possibilities of modern technologies to maximise the recovery of raw materials and materials.

From the responses provided, there is a clear trend towards traditional methods for

companies to combat the uncertainty of their surroundings. But the traditional approach leads leaders to look at uncertainty in a binary way – to accept that the world is either secure and therefore open to precise forecasts of the future, or uncertain and therefore completely unpredictable. Planning processes, which require accurate forecasts, force managers to ignore fundamental uncertainties in their objectives for the future. Such an approach pushes managers into underestimating uncertainty in order to make their business strategy more convincing to shareholders.

Underestimating uncertainty can lead to strategies that neither protect against threats nor take advantage of the opportunities that higher levels of uncertainty can provide. For example, Kodak ignored the uncertainty about the future of traditional photography and built their business strategy on traditional expectations, which ultimately led to a significant backlog of the company compared to its competitors. Typical example of the innovator's dilemma. This example, together with a blocker and hundreds of others, shows that traditional strategic planning approaches can be directly dangerous in case of uncertainty.

The information **in point 10.2 focuses** on the analysis of the answers to questions concerning the availability and activities of creating and developing **innovation capabilities** of SMEs by the SEDC and the UPR. According to the author, the main designs that best describe the innovation capabilities of the SMEs involved in the research are investment in R & D, acquisition of know-how, copyright, patents, collaboration/networking for innovation, application of knowledge to create/mutualise innovation, acquisition of knowledge to enhance innovation capabilities and counselling to enhance innovation capabilities.

*Investment in R & D in 2019* was an average of BGN 32,5 in 2019 R & D investment in the 151 SMEs surveyed, with the largest share (38 %) of firms indicating up to BGN 10 000 in R & D investments (17.7 %). This means that the majority of SMEs (55.7 %) mention investments of up to BGN 20. Legal impression and the large number of firms (20.3 %) that did not specifically answer this question, which is reason to assume that they either did not invest in R & D or that the amounts were insignificant.

*Acquisition of Nou – know-how, copyright, patents.* 92.1 % of companies surveyed say that they have not acquired an existing knowledge – know-how, copyrights and patents – in the last two years.

*Cooperation/creation of innovation networks.* 66.9 % of SMEs surveyed replied that in the last two years they did not collaborate on innovative activities with other enterprises or organisations, and 31 % replied that they had carried out this type of activity. We will also analyse the partner institutions with which 1/3 of the firms in the survey have cooperated. The majority of partner institutions for SME innovation activities in the survey are enterprises from Bulgaria. Taking into account the fact that the innovation performance of the country is unsatisfactory, even those SMEs cooperating on innovation activities with institutions from Bulgaria have limited opportunities for innovation.

*Applying knowledge to create/mutualise innovation.* 71.5 % of respondents reported that no internal or contractual activities were organised in the last two years to launch new or improved goods and services (product innovation) and 69.5 % replied that they had not organised internal or contractual activities in the last two years to change the form, type or use of goods and services (technological innovation).

In addition, 78.9 % of the SMEs surveyed replied that in the last two years they did not organise other internal or contractual activities to implement new or significantly improved products and processes such as studies, testing, development, etc.

*Acquiring knowledge to enhance innovation capabilities.* 72.8 % of the firms surveyed stated that they did not organise staff training in developing and introducing new or improved products and services in the last two years.

At the same time, 46.4 % of the SMEs surveyed indicated that they had not yet resorted to company management training, 10.6 % took up 1 training and 39.0 % several. Only 4 % of the companies surveyed stated that they had long-term contracts.

*Advising on enhancing innovation capabilities.* 43.7 % of respondents to the survey reported that they had not previously resorted to company management advice and 15.2 % reported a single consultation. In addition, 36.4 % of SMEs surveyed reported that they had been consulted several times and only 4.6 % said that long-term contracts were available. The main areas of training and counselling relate to the traditional resource management processes of each organisation. Less than 30 % indicated that they had organised training/advice on strategy formulation and planning. The information is also supplemented by the finding that the main providers are individual consultants and small firms, with the share of traditional sources of a wide range of R & D, namely universities and business schools, with low preference among SMEs surveyed.

Section **10.3 provides an** analysis of the answers to questions concerning the availability and activities of creating and developing an **innovation culture** in SMEs by the SER and the UPR. According to the author, the main structures for defining organisational culture within innovation management are an orientation towards new technologies, guidance towards training, external sources of information, the development of individual knowledge, with a tendency towards creativity, freedom, autonomy and empowerment, risk appetite, future market orientation and support and facilitation of innovation.

*New technology orientation.* 64.2 % of respondents said they had not introduced innovations in products in the last two years and 61.1 % of respondents replied that they did not innovate in services during the period. At the same time, 70.9 % of respondents said they did not innovate in products or services before competitors and 46.4 % said they had introduced innovations already introduced by competitors in the last two years.

There is a similar trend in technological innovation, where 60.3 % of respondents say they have not introduced improved methods in the production of goods and services in the last two years. At the same time, 63.6 % of respondents replied that during this period they did not improve support activities in their processes and 64.2 % gave a negative answer to the question whether they had improved their product logistics methods.

The situation is similar to organizational innovation. 58.3 % of respondents said that in the last two years they had not introduced new methods for organising processes in companies, and 64.2 % of respondents replied that they had not introduced new methods for organising work, taking responsibility and taking decisions during the period. At the same time, only 24.5 % of respondents replied positively to the introduction of new methods of organising external relations with other businesses and organisations.

The trend is also confirmed when answering questions concerning market/marketing

innovation. 76.2 % of respondents have not introduced changes in the design and packaging of a good and service in the last two years and 68.9 % have not used new techniques to promote goods and services. Only 36.4 % of respondents responded positively to the question of introducing new market positioning methods and sales channels for goods and services, while only 29.8 % acknowledged that they had introduced new pricing methods.

*Orientation towards training, external sources of information, development of individual knowledge.* Less than 50 % (49.7 %) of the firms surveyed replied positively (Category YES and more recently YES) that the ability of employees to learn is a key competitive advantage. At the same time, 62.3 % of respondents confirmed with positive answers that employee training is seen as an investment rather than a cost, and 63 % confirm that employee training is a top priority. These answers require an assessment of the answers to questions 12 and 16 in the capability assessment section, according to which 72.8 % of the firms surveyed stated that they had not organised staff training in the development and introduction of new or improved products and services in the last two years. 46.4 % of the SMEs surveyed indicated that they had not yet resorted to company management training, 10.6 % took up 1 training and 39.0 % several. Only 4 % of the companies surveyed stated that they had long-term contracts.

These responses do not correspond to each other, which is a prerequisite for a preliminary conclusion that participants in the study cannot fully appreciate the role of training in shaping an innovation culture and capacity to innovate.

*Inclination to creativity, freedom, autonomy and empowerment.* Just over half (52.4 %) of the firms surveyed replied positively (Category YES and more recently YES) to the question whether managers encourage employees to think non-standard, and 54.3 % confirm that they encourage further innovation work. There is a high proportion (74.2 %) of positive answers to the question of whether original ideas are highly valued. In this case, the question remains as to why, despite the propensity and willingness to create and freedom expressed in the study, the proportion of know-how and patents introduced, as well as different types of innovation, have remained low over the last two years? Thesis work will assess the causes and put forward concrete proposals to improve performance.

*Risk preparedness.* Less than half of the firms surveyed (49.7 %) replied positively (Category YES and more recently YES) to the question of whether risks are taken in the process of promoting entrepreneurial orientation for new ideas, nearly 30 % of respondents answered this question in the negative and more than 20 % were silent.

*Future market orientation.* 93.7 % of the firms surveyed replied positively (Category YES and more recently YES) that they understood customers' current needs. The majority (91.4 %) of the positive answers to the question of having clear customer satisfaction targets and 68.2 % of survey respondents say they measure customer satisfaction.

On the other hand, 68.2 % of respondents answered positively (Category YES and more recently YES) to the question of whether sales officers submit information on competitive actions quickly. At the same time, 64.3 % confirmed that they were responding quickly to competitors' actions, and 62.3 % of respondents to the survey claimed that the company's management discussed competitive strategies.

Speaking about competition, it is necessary to return to Question No 6 concerning the geographical areas of sales. According to the responses of the firms surveyed, the vast majority

of markets are meat or national markets, which also determines the innovation characteristics of competitors.

So far, the book of Harvard Professor Clayton Christensen “The Innovator’s Dilemma” has been cited in thesis, which describes a theory of how traditional companies fail, not because they do not listen to their customers, but just for the opposite reason, because they listen to their customers and continue with incremental innovation and, as a result, have missed market changes caused by companies that had absolutely no previous experience and attachment to old traditional methods, and have deployed and used modern technologies, products, services and processes, thereby ensuring their competitiveness. In particular, in the case of the undertakings examined, that rule applies in full.

*Support and facilitate innovation.* Just over half (54.3 %) of the firms surveyed confirm with a positive answer (Category YES and, more recently, YES) that innovation in the company has been introduced by management and 32.4 % suggest that innovation is random, as a result of sampling and side-action.

High positive response rate (59.6 %) confirming that innovation in the company has arisen as a result of team work, internally or with external partners, and only 28.5 % say that the reason for innovation is interaction and collaboration with consultants and external experts.

An analysis of the answers to questions concerning the existence and activities of creating and developing an **organisational structure** to support innovation in SMEs from the SER and the UPR is **attached in paragraph 10.4**. According to the author, the main structures for defining the structure within innovation management are the number of R & D staff, the organisational capacity for innovation, decentralisation in decision-making, the development of innovation competences, the shared vision of company development and the structure of business support.

*R& D staff in 2019*, 26.6 % of SMEs surveyed reported that in 2019 there were no R & D personnel, 30.4 % reported 1 person and 16.5 % reported 2 people. 3 or more R & D employees accounted for 26.5 % of firms. There is a significant difference between the responses of firms from the UPU and the SEMR, with 48.7 % of SMEs in SEE replying that in 2019 there were no R & D personnel.

*Organisational capacity for innovation.* 53 % of the companies surveyed are run by members of the owners’ family. At the same time, 37.7 % of SMEs surveyed indicated that the interests of the owner were at the core of the tasks involved, while 11.9 % put the formal allocation of responsibilities as a basis for targeting. The survey shows that in half of the companies surveyed, tasks are set in line with the interests of the owner and on the basis of formal standardised procedures.

*Decentralisation of decision-making.* At the same time, 47.7 % of respondents say that decisions are taken by those with power and 26.5 % say that decisions are taken by empowered people. The proportion of responses according to which decisions are taken by people with knowledge and experience (23.8 %) is low. The answers to this group of questions show strict adherence to traditional methods of targeting and decision-making. This implies mainly the use of mechanistic organisational structures.



*Development of competences in the field of innovation.* Only 14.6 % of firms surveyed confirm that they focus on stand-alone R & D activities in the development of innovation. The proportion (12.6 %) of respondents who responded positively that they had concluded R & D contracts with other companies and organisations was even lower. At the same time, 35.1 % of respondents confirm that the focus of innovation is to acquire modern DMA aimed at new, significantly improved products or processes, i.e. the use of external competences for innovation.

*A shared vision in company management.* 64.5 % of respondents confirm (Category YES and more recently YES) that the management of the company is divided between levels, functions and departments. Just over half (51.6 %) of survey respondents say that employees are perceived as partners. At the same time, 63.6 % of respondents say (Category YES and more recently YES) that sharing the company's direction of development is considered important for management.

*Structure of business support elements.* 70.2 % of the firms surveyed confirm (Category YES and, more recently, YES) that at the heart of the value chain is the division of responsibilities between the company and the partners. Also 70.2 % of respondents stated that they use a cost model by managing the costs of delivering profitable products. 51 % of survey respondents stated that human resources management is the main focus of using and developing the capacity and potential of staff.

Paragraph **10.5 deals with the** answers to questions concerning the existence and activities of creating and developing a **strategy** to support innovation in SMEs by the SEG and the UPR. According to the author, the main concepts for defining the innovation strategy are clearly defined vision, mission and objectives for growth, strategic planning, innovation management standards, innovation strategy aimed at triggering the existing way of doing business, business processes supporting the innovation strategy and a focused innovation portfolio.

*Clearly defined vision, mission and growth goals.* 80.8 % of respondents confirm (Category YES and more recently YES) the existence of clearly defined vision, mission and strategic objectives.

*Strategic planning.* 61.5 % of survey respondents stated (Category YES and more recently YES) that they use strategic planning procedures and tools and 60.7 % confirm that strategic planning activities are being carried out.

*Standards for innovation management.* 47.1 % of respondents say (Category YES and, more recently, YES) that innovation management standards are applied in their companies and 70.2 % of respondents confirm that activities are being carried out to identify new opportunities.

*Entrepreneurial dynamism aimed at triggering the existing way of doing business.* Slightly more than half (53 %) of the firms surveyed confirm that triggering the existing way of doing business is central to the strategy.

*Business processes supporting the innovation strategy.* 66.3 % of respondents to the survey answered positively (Category YES and more recently YES) to the question of the existence of a marketing strategy, and 70.2 % confirmed the implementation of human resources management strategies and practices. At the same time, 80.8 % of the firms surveyed confirm (Category YES and more recently YES) the existence of a company's financial management

strategy and practices.

The existence of a strategy and practices for managing operations is confirmed (Category DA and, more recently, YES) by 69.4 % of participants, and the implementation of environmental standards is confirmed by 72.8 % of firms. 76.8 % of respondents claim that quality management standards are in place (Category YES and more recently YES). At the same time, only 26.4 % of firms involved confirm (Category YES and more recently YES) the use of business process structuring practices, which is irrelevant with the prevailing positive answers to questions concerning the existence of strategies and practices for the management of individual business processes.

*Focused innovation portfolio.* 60.3 % of respondents confirm (Category YES and more recently YES) that the provision of new products and services is central to firms' strategy. 55.0 % of respondents to the survey stated (Category YES and more recently YES) that changes in the industry are at the heart of the strategies developed by companies.

The research questions and their answers, namely the lack of detail on the elements of innovation management, do not provide a clear appreciation of the innovation potential of the SMEs surveyed. The author of the dissertation work suggests using a Matrix to assess the innovation potential of companies on the basis of an analysis of their elements in terms of answering the questions asked to clarify the structures presented.

Section **10.6 presents an assessment of the innovation potential** of SMEs from the UPR and SEG through the lens of key aspects of innovation activity.

Using the methods, approaches and methodologies presented in **point 7** of Chapter 2, the author develops a **Matrix for assessing the innovation potential of SMEs** from the UPR and SEG through the lens of key aspects of innovation.

Table 3 encloses the CIP for each aspect of innovation management, obtained by adding up the CIS for each individual structure to that aspect.

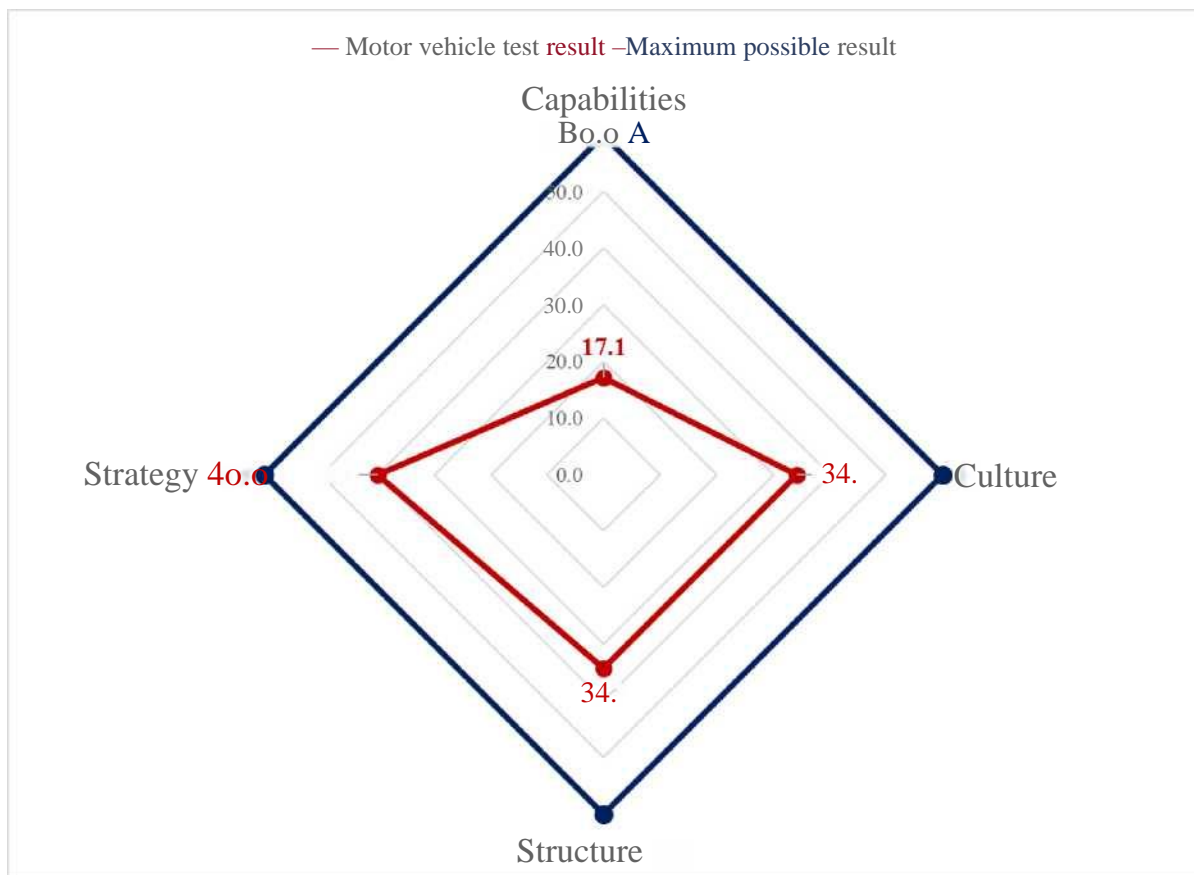
A matrix to assess the innovation potential of SMEs from the UPR and SEG through the lens of key aspects of innovation activity is presented in Graph 3. The maximum score for each aspect is 60 points, based on the best innovative presentation of the research questions using the idealisation method.

Table 3

Capabilities			Culture		
NO	Design	CIP	NO	Design	CIP
1	Level of R & D investment	3.8	1	New technology orientation	3.5
2	Acquisition of Nou – know-how, copyright, patents	0.8	2	Orientation towards training, external sources of information, development of individual knowledge	6.4
3	Cooperation/creation of innovation networks	3.3	3	Creativity, freedom, autonomy and empowerment	6.5
4	Applying knowledge for innovation creation/mutualisation	2.7	4	Risk preparedness	5.6
5	Acquiring knowledge to enhance innovation capabilities	3.1	5	Future market orientation	7.4
6	Consultation to enhance innovation capabilities	3.5	6	Support and facilitate innovation	4.9
7	<b>TOTAL</b>	<b>17.1</b>	7	<b>TOTAL</b>	<b>34.2</b>
Structure			Strange Gia		
NO	Design	CIP	NO	Design	CIP
1	R & D personnel	4.9	1	Clearly defined vision, mission and growth objectives	7.9
2	Organisational capacity for innovation	8.1	2	Strategic planning	6.5
3	Decentralisation in decision-making	6.0	3	Standards for innovation management	6.3
4	Development of competences in the field of innovation	2.1	4	Entrepreneurial dynamism aimed at triggering the existing way of doing business.	6.1
5	A shared vision in company management	6.4	5	Business processes supporting the innovation strategy	6.8
6	Structure of business support elements	6.7	6	Focused innovation portfolio	6.3
7	<b>TOTAL</b>	<b>34.2</b>	7	<b>TOTAL</b>	<b>40.0</b>

A matrix to assess the innovation potential of SMEs from the UPR and SEG through the lens of key aspects of innovation activity is presented in Graph 3. The maximum score for each aspect is 60 points, based on the best innovative presentation of the research questions using the idealisation method.

Graph 3



As evidenced by the information provided on all four aspects of innovation, SMEs are significantly lagging behind, with the most critical in innovation capabilities. The analysis shows that the overall innovation performance is influenced by all four aspects, namely by their interaction, supplementing balancing. Changing the presentation on one aspect automatically also leads to changes in the other aspects. The specific Matrix shows that due to the lack of innovation capabilities, performance on the other aspects cannot be improved.

Separately, despite the higher levels of evaluation of innovation culture, it appears to be insufficient to stimulate the improvement of innovation capabilities, which are also influenced by the strategy and the existence of an innovation support structure. While SMEs are apparently trying to build an innovation strategy in line with the requirements of market competition, their organisational and decision-making structure do not make it possible to increase innovation capabilities and improve the organisational culture of innovation. Enhancing capabilities can only be turned into successful innovation once the right structure is in place to support innovation. The ability to innovate is also positively influenced by an organisational culture that makes employees more confident, motivated and involved in company development. This requires, on the one hand, innovation-friendly management and, on the other hand, enhancing the innovative capabilities of employees through the development of specialised knowledge. Capabilities relate to updating the knowledge and capabilities of staff.

Within a company, therefore, the necessary basic conditions must be created to boost the innovation potential of enterprises by improving activities on the four aspects of innovation

management and to ensure a balance between them, ensuring that firms grow.

## CONCLUSION

The problems in developing and implementing innovation and improving the efficiency of the management of SMEs' innovative activities are undoubtedly relevant in the modern context of Bulgaria's transition to an innovative development path. It should be noted that these problems are multifaceted and require complex solutions. At the same time, despite researchers' attention to the identified problems of innovation management, the economy remains an innovative inertia, which is confirmed by the EDIS, with Bulgaria's innovation performance continuously judged to be unsatisfactory for the period 2019-2012, as the country is always ranked in the group of dire innovators and the specific position is either last or penultimate.

In this respect, improving the management of innovative activities of enterprises by analysing current presentations, identifying backlogs and preparing proposals for improvement seems indispensable, as it makes it possible to identify the essence of the innovation management process, analyse the relationship and interdependence of the functions performed, set out the main guidelines for improving governance, thus increasing the efficiency of management decision-making in planning and implementing innovation.

In carrying out the tasks set out in the dissertation, the following results need to be highlighted:

1. The nature and specificity of the innovative activity of enterprises in terms of its relationship with the development of scientific and technical progress is revealed, systematised and clarified, the conceptual structure of innovative management, which fulfils the task of presenting the nature and specificity of the innovative activity of enterprises;
2. Innovation as a result of innovation has been shown to have a triad of scientific and technical novelty, industrial feasibility, commercial value and the basis of scientific and technological progress. Fundamentally new or improved products/services and technologies for their production emerge as results of innovation in markets, leading to changes in the financial and economic performance of companies and the GDP of countries, thus fulfilling the task of defining the role of innovation in the growth of firms and the economy as a whole;
3. The main measures for the well-being of society have been identified and the impact of innovation on its dynamics has been shown retrospectively from the onset of the first industrial revolution to the present day;
4. Analysing the business innovation management system and disclosing the interconnections between its subsystems;
5. The concepts of enterprise innovation management and the interlinkages between its subsystems are presented and analysed. Four key aspects of innovation management have been identified and analysed: skills, culture, structure and strategy;
6. The results of research into the innovation performance of SMEs by the UPR and the JRI have been presented and analysed through the lens of key aspects of innovation activity. The study was carried out as part of the project 'Regional indexation of innovation activity in sectors of the economy (irisi);
7. Methodological approaches for integrated integrated evaluation of the innovation performance of SMEs have been developed on the basis of the analysis of the results of the study referred to in point 6 of this section.

8. A comprehensive integrated assessment of the innovation potential of SMEs has been prepared and presented, in the light of the key aspects of the innovation activity and on the basis of the methodology presented. Based on the evaluation of the four aspects of innovation, SMEs are significantly lagging behind, with the most critical in innovation capabilities. The analysis shows that the overall innovation performance is influenced by all four aspects and, more precisely, by their interaction, complementing balancing. The lack of innovation capabilities cannot improve performance on other aspects. Separately, despite the higher levels of evaluation of innovation culture, it appears to be insufficient to stimulate the improvement of innovation capabilities, which are also influenced by the strategy and the existence of an innovation support structure. Obviously, SMEs try to build an innovation strategy in line with the requirements of market competition, but their organisational structure and the structure of decision-making relationships do not make it possible to enhance innovation capabilities and improve the organisational culture of innovation. Enhancing capabilities can only be turned into successful innovation once the right structure is in place to support innovation. The ability to innovate is also positively influenced by an organisational culture that makes employees more confident, motivated and involved in company development. Therefore, the necessary basic conditions must be created within a company to enhance the innovation potential of enterprises by improving activities on the four aspects of innovation management and to ensure a balance between them, ensuring that firms grow;
9. Orientations and methodological tools are defined and justified to stimulate the innovation potential of enterprises and to close the innovation gap of SMEs by improving the activities of the four aspects of innovation management.
10. The forms of state support for developing and strengthening the innovation potential of SMEs are summarised and systematised. The main vectors of interaction between the state and business are presented and justified to strike a balance between the drive for innovation and growth on the one hand and the threats of labour market transformation on the other.

As a result of the study, its objectives and targets have been met.

### **REPORT ON CONTRIBUTIONS TO THESIS WORK**

#### **Scientific contributions**

1. Enriching the theoretical study on the link between innovation and the growth of companies;
2. Shaping an Innovation Roadmap based on a logical sequence of events leading to innovative solutions through the transition between real-life spheres (Page 9, Figure 3 of thesis work);
3. Systematising innovation management in four main aspects, namely ability, structure, culture and strategy (Page 40 of thesis work);
4. Systematising basic constructions into each of the main aspects (Page 186, Table 13 of

thesis work);

5. Develop a “loop” of continuous improvement in favour of companies’ growth. Innovation enhances capabilities and increased capabilities lead to the development and deployment of innovations (Page 59, Figure 11 of thesis labour);
6. Building on the model for the 5 Porter forces by:
  - 6.1. Integration of open systems in interdependence with the surrounding a competitive environment within the industry,
  - 6.2. Widening the limits of external impacts beyond the boundaries of the specific sector and including global factors influencing the competitive environment (Page 101, Figure 23 of thesis work);

### **Scientific – Applied Contributions**

7. Defining success factors for innovation, including:
  - 7.1. Effective pooling of data, analysis and sectoral expertise (Page 118, Section 5.5.1 of thesis work),
  - 7.2. Concentration and coherence of innovation value (Page 120, Section 5.5.2. of thesis work),
  - 7.3. Continuous competence development for the development and improvement of innovative capabilities (Page 126, Section 5.5.3. of thesis work),
  - 7.4. Continuous improvement of work processes (Page 129, Section 5.5.4. of thesis work),
  - 7.5. Making innovation strategies a vector for the future development of companies (Page 150, Section 5.5.5 of thesis work),
  - 7.6. Knowledge automation (Page 166, Section 5.5.10 of thesis work);
8. Preparation of a framework instruction for business in the management of innovation development through a single presentation of the innovation replication cycle and the summary of the innovation lifecycle and application of the Schmit rule for resource allocation (Page 196, Figure 31 of the dissertation labour);
9. Developing a conceptual model for translating innovation into a competitive advantage for businesses (Page 96, Figure 20 of thesis work);
10. Construction of a methodology to form an integrated integrated assessment for each of the main aspects of investment activity (Chapter 2/3);
11. Construction of a Matrix for the Assessment of the Innovation Potential of SMEs by the UPR and SEG through the lens of key aspects of innovation activity (Page 245, Figure 33 of the Desserative Work).



## **LIST OF PUBLICATIONS ON THESIS WORK**

### **Articles and reports**

1. “Self-organising Proceedings”, 56 Scientific Conference of the University of Ruse, Industry 4.0. Business environment. Quality of life "October 2017;
2. Digitalisation as an Asset Optimisation Strategy, XX Scientific and Technical Conference of the Free University of Burgas, April 2019;
3. “Influence of Innovative Technologies on the Welfare of Society”, International Youth Conference of the Free University of Burgas, Contemporary management practices X Connectivity and regional partnership, June 2019;
4. Innovation and Business Growth, XXI Conference on Student Science Creativity at the Free University of Burgas, April 2020;
5. “Digital transformation as a strategy to increase the competitiveness of industrial enterprises”, International Science Conference “Digital transformations, media and social inclusion”, June 2020;
6. “Securing growth through technology-modernisation and changing business models for governance” Industrial Growth Conference 2020, October 2020.