

**Owner-Manager's Competences
as Determinants of Innovativeness
of SMEs in Podkarpacie Province**

Joseph Ohimor

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as Determinants of Innovativeness
of SMEs in Podkarpacie Province**



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Introduction

The end of the twentieth century witnessed intensified increase in the role of knowledge in creating new values in the global economy, which has necessitated a significant departure from the traditional models of production and premises of management formulated by F. Taylor in his concept of scientific organization of work.

A specific feature of this new approach is evolution – persistency of changes that require decision-makers in enterprises, including SMEs, to relentlessly search for and implement new solutions to survive in a highly competitive market (Sopińska, A. & Wachowiak, P., 2016). Achieving success by enterprises depends on their ability to capture and interpret signals emerging in their business environments (Bombiak, E., 2014; Welsch, H. et al. 2013), on the basis of which they are able to designate appropriate strategic responses to market demands under prevailing circumstances. Innovation has, thus, become the driving force of economic development in the 21st century.

Researches have been undertaken to understand how the functioning of enterprises can be improved. The findings of such researches have shown that several trends are identifiable, two of which are worthy of mention at this point, including: the perspective of the company (its resources, capabilities, innovation, management methods) and the perspective of the employee, and manager, who is not only a resource but also a capital in modern business organizations. Previous researches in the respective area have indicated the existence of a proportional relationship between the company's capabilities, including its innovativeness and the competences of their owners and / managers (Grant, 2010, as provided by Mohsin, A., et al. 2017). The Resource-Based View (RBV) emphasizes the role of knowledge, skills and attitudes needed by the manager to accomplish specific tasks. While it views the organization as a body of resources, it regards the human factor as its crucial component, whose understanding is a continued process that can be improved upon. The decision to undertake the studies concerning the subject area of the doctoral dissertation resonates with this understanding.

Indeed, scholars in management sciences have continued to devote a lot of space to researches aimed at identifying factors influencing enterprise innovation (Sankowska, A., 2012). Several studies in enterprise management literature, including Romanowska, M., (2016) have clearly indicated that such factors can be firm-specific (internal) or external to the enterprise. Hodgetts, R., and Kuratko, D., (see Ahmad, N.H., 2007) argue that achieving success in business requires a proper

combination of both types of competency groups, as they complement each other. The intensity of studies in this respect is an indication of the fact that the impact of these factors on innovation is significant in enterprise management. Prahalad, C. & Hamel, G. (1990) and Sopińska, A., & Wachowiak, P., (2016) emphasize that the ability of the enterprise to meet the needs of its customers is heavily dependent on the core competences of its entrepreneur (owner-manager). The terms “owner” and “manager”, including their competences are variedly perceived in subject literature. Hence, the author assumes for the needs of the dissertation that the term “owner-manager” refers to a person who owns a small or medium-scaled enterprise and manages it at the same time. The owner-manager competences, on the other hand, are the competences/ set of competences possessed and/or acquired by the owner-manager to enable him/her accomplish the objectives of his/her innovative drives. Hodgetts, R., and D. Kuratko’s (see Ahmad, N.H., 2007) view that competences in such cases complement each other is thence adopted for the needs of this dissertation.

Competences, including the owner-manager competences, have been studied from varied theoretical perspectives. One of such is the “Entrepreneurial Competence (EC)” theory that brings together a number of studies concerning the role of the entrepreneur (owner-manager) in achieving a sustainable competitive advantage, giving consideration to his/her use of the company’s tangible and intangible resources. The competences of an enterprise’s employees, including the owner’s managerial competences are essential features that are causally associated with higher work efficiency (Mohsin, A., et al., 2017; Boyatzis, R., 1982) as well as with its innovativeness. The significance of the role of the owner’s managerial competence is demonstrated by the fact that the quality of the enterprise’s objectives is contingent on the quality of processes, methods and practices applied in their achievement (Gunday, G., et al., 2008). Man, T.W. et al., (2008) emphasis that managerial competences are behavioural and observable has thus made them more keenly associated with company performance rather than the entrepreneur’s personal traits, such as his intentions and motivations. The above-mentioned authors and many others also emphasize that since managerial competences are developmental (dynamic) in their substance, they are adequately more suitable for monitoring developments in an enterprise’s operations in a dynamically evolving global business environment.

The term “Core Competences”, which evolves from the resource theory, is essentially applied in reference to organizational competences (Prahalad, C.K. & Hamel, G., 1990; Sankowska, A., 2012). It is, however, assumed that employees employ some set of competences more readily than others in their daily activities. Hence, in analysing the situation in Podkarpacie province it has been assumed for the needs of this dissertation that the core competences of owners and managers, relying on studies earlier mentioned, are such that are essential for generating innovations for the enterprise. A question that readily comes to

mind though is whether owner-managers of SMEs in Podkarpacie province have good knowledge of such competences and are able to indicate their significance in implementing innovation processes.

Concluding from the rather brief discussion, it is understood that owner-manager competences serve as significant components of enterprise, including SMEs development, especially in their quest to offer innovative solutions to their customers, aiming to achieve a competitive advantage in a demanding and continuously evolving market. Moreover, despite the growing global researches on the owner/manager competences and enterprise innovation, the issue has received little attention in academic studies in Podkarpacie province. The foregoing has shown that studies in the subject area will enhance both cognitive and practical understanding, thus contributing to academic/scientific discourse in owner-manager competences and innovativeness in SMEs. Hence, the author has considered it pertinent to identify which owner-manager's competences, structure and model, are relevant to the development and sustenance of innovative activities of SMEs covered in the study. The term SME is used in the dissertation to cover micro, small and medium enterprises.

Research Questions

The identification of the facts from the preceding discussion, had been aimed at defining the crucial role of the owner-manager in SMEs in developing the enterprise as well as own experience, based on his/her market observations from the context of growing the company's innovation. The author is, hence, prompted to put forward the following **research questions** to enable an in-depth diagnosis of the issue central to the doctoral dissertation.

1. What are the competency constituents (profile) perceived by owner-managers of SMEs to be important in supporting their enterprise's innovative development?
2. What are the differences in competency constituents in respect of female and male owner-managers of SMEs?
3. What, if any, are the differences in competency constituents relative to organizational factors in SMEs?
4. Which competency constituents are significant at various stages of innovation creation in SMEs?
5. How do owner-managers in SMEs understand the identified competences?

The Research Gap

In attempting to provide answers to the above-mentioned questions, a systematic review of both domestic and foreign literature was undertaken. The literature

review was also aimed to identify paucities of research on the issue of owner-manager competences and enterprise innovation. A careful and systematic review of the related literature has enabled the author to come up with the following conclusions:

1. There is lack of unanimity regarding not only definitions of what competences are, but also managerial competences or core competences of the owner-manager of companies;
2. Managerial competences vary in relation to the level of management;
3. The dynamic nature of competence development implies that both its composition and structure varies, relative to the needs and circumstances;
4. The issue of owner-manager competences in SME is not commonly discussed in domestic literature, rather they are mostly devoted to discussing the manager and his competences in general;
5. There are observable differences between the managerial competences of innovative and non-innovative enterprises.

An intense comparison of the findings of empirical studies identified in course of the systematic literature review with the previously stated research questions has enabled the author to identify the following **research gaps**:

1. The non-existence of a uniform definition of the competences of the owner-manager of innovative enterprises.
2. There is insubstantial number of studies concerning the type and structure of competences characterizing the owner-manager of an innovative enterprise.
3. There is a scanty number of comparative studies identifying the core competences of the owner-manager of an innovative enterprise relative to the gender of the owner-manager, including his/her age and level of education; line of business activity (production or services), type of innovation, scope of the business activity and size of the enterprise as well as the stage of innovation creation.

The Research Concept

Research Objectives (cognitive, methodological and application)

The research gaps identified in the previous section have provided the premise for articulating the general objective of the doctoral dissertation as follows:

The General Objective of the dissertation is to design a model of the core competences of owner-managers of innovative enterprises existing in Podkarpace Province and to undertake analyses of the model in respect of the organization's features, the stage of innovation creation and the owner-manager's demographic characteristics. The study will also aim to design a competency framework of SME owner-managers, comparing it with theoretical perspectives.

Attempts to accomplish the rather broadly set general objective have necessitated the need to implement more specific objectives encompassing the following areas:

Specific (Cognitive) Objectives:

- Identifying and articulating the current state of knowledge through a critical analysis of the relevant subject literature, concerning owner-manager's core competences deployed in the management and development of innovative enterprises.
- Establishing a potential set of competences, which after verification via the use of the empirical study will serve as the premise for designing a model of core competences of the owner-manager of an innovative SME.
- Designing a model of core competences of the owner-manager of an innovative SME.
- Evaluating the model of core competences of the owner-manager of innovative SME in respect of the organization's features, the stage of innovation creation and the owner-manager's demographic characteristics.

Methodological Objectives:

- Developing a novel methodology for identifying models of core competences of the owner-managers of innovative enterprises.

Application Objectives:

- Serving as recommendations for entrepreneurs seeking support in managing an innovative company within the SME business sector.
- Serving as recommendations for educational institutions in their attempts to augment their curricula with components to improve manager's competences, especially in aspects crucial for reinforcing their quest for innovation development.

Organization of Chapters

The dissertation is, for the needs of clarity, organized into chapters in the following order. There are five chapters besides the introductory and concluding chapters. This chapter, as an introduction, presents the research background and the research gaps identified. Five research questions, the specific objectives as well as the relevancy of the research have been outlined. This is followed with three chapters, presenting thorough theoretical reviews of national and

international sources concerning the subject matter of the dissertation. Chapter one presents an exhaustive review of the literature concerning management, and owner-managers in SME. The chapter relates the general idea of enterprise management and owner-manager functions/roles to the specific nature prevalent in SMEs. Chapter two focuses on innovation and its determinants, articulating various theoretical perspectives and empirical-based typologies. The chapter also deliberates on the specificity of innovation in SMEs, including factors influencing its development. The last of the three chapters, dwell on the review of literature relating to the concept of managerial competencies. Understanding managerial competences from the perspective of existing management theories was articulated in this chapter. The chapter also discusses empirically-based models of competences.

Chapter four, on the other hand, introduces the quantitative aspects of the dissertation. It begins with outlining the research methodology, including the methods applied to gather the primary data. The various steps that will be implemented to accomplish the goals of the dissertation are presented in a procedural diagram. The design and application of the research tools, preliminary (expert) and main surveys, were also given a detailed discussion in the chapter. Chapter five presents and analyses the key findings of the main survey realized amongst owner-managers of innovation award winning SMEs in Podkarpacie Province. The analysis focuses on looking into the findings to provide answers to the research questions, a process which culminates in presenting a novel model of owner-manager core competences for innovative SMEs in Podkarpacie Province.

Finally, the last, concluding chapter of the dissertation, which covers a discussion, relates the findings with contents of available subject literature. It also discusses the possible practical utility of the findings, limitations and suggestions concerning future areas of research for enhanced knowledge in the field of owner-managers' core competences and management in SMEs.

CHAPTER ONE

Management in small and medium-scaled enterprise

1.1. Essence of Enterprise Management

1.1.1. Management: A historical Perspective

Much talk about management, including in academic circles, had often concentrated on modern developments in management studies, whose beginning is associated with the industrial revolution on both sides of the Atlantic. However, management had always been part of human existence. Early peoples as farmers, hunters or craftsmen, had to manage their use of resources not only for their benefits but also in ways to avoid conflicts with neighbouring groups or communities.

The organization of man into larger societies, nation states, or larger working groups resulted in the need to harmonize relationships, thus necessitating the application of more formalized forms of management as far back as the 18th century. Besides the knowledge that one can gain, the historical perspective of management studies offers, according to Daft, R. (2008) a wider spectrum of thoughts in search of patterns that cut across time periods that might be helpful in managing present work environments.

Several approaches have been applied in subject literature in attempts to harmonize evolutionary trends in management. One of such approaches is periodization (Karsten, L. 2014; Keulen, S. & Kroeze, R. 2014), which is a process of categorizing the historical events into distinct and quantifiable periods of time. While this is helpful in grasping both current and historical occurrences, it needs to be emphasized that a period of time cannot be regarded as a closed entity with specified limitations that separate one period from another. Phenomena and/or ideas are not generated and do not grow to public acceptance in one day, rather they evolve over time in response to prevailing circumstances. Kreulen, S and R. Kroeze's (2014) argument that management is a cultural phenomenon that is also time-biased should not be understood as a restrictive time limitation rather as a procedure that encourages one to focus on key features of a given period.

A careful study of literature has revealed that periodization of management history uses various criteria. Some of such criteria that will be presented, briefly though, include the longitudinal perspective, the geographical perspective, and the emerging theoretical perspective.

Longitudinal periodization

Longitudinal periodization of management history is discussed in literature, for example by Keulen, S. and Kroeze, R. (2014). They focused specifically on the history of management in the 20th century as it is considered a period that witnessed the spread of management in the industrial sector that served as the workhouse of management studies in the 19th century. Their work resulted in the identification of four periods in the development of management history, a summary of which is illustrated in Table 1.

Table 1. Periods in C20th history of management with characteristic features

Periods and identifiable researchers	Characteristic features
Scientific Management (1900–1940): F.W. Taylor; M. Weber; H. Fayol; H.L. Gantt; F.B. Gilbreth; K. Adamiecki; H. Le Chatelier; Z. Rytel; P. Drzewiecki.	Focus on shop floors. A departure from traditional to scientific management. The spread of management to public administration. Adoption of managerial rationalization and efficiency by following procedures thus minimizing wastes and enhanced group efficiency (Olum, Y. 2004). Fayol's functions of management.
Humanistic or Behavioral Management (1940-1960): P. Drucker; M.P. Follett; S. Bieńkowski;	The enterprise being viewed as a social entity. Staff motivation achieved by emphasizing their morale, meeting their social needs and enhancing self-actualization. The manager as a social person (Elkins, H. 2019). The Marshall Plan – America's recovery plan of the Japanese economy. A diversification of management and introduction of „management-by-objectives” procedures. The introduction of welfare and environmental policies in public administration and rise of Keynesian theory.
Strategic Management (1960–1980): M. Mintzberg	Restructuring of top management and viewing their roles as focal points. Recognition of the manager as strategically important. Popularity of multi-dimensional approaches to organizational structuring. Introduction of management practices in small and rural organizations.
Popular and individualized Management (1980–2000): H. Mintzberg	Generally focused on the manager. Popularization of strategic management concepts, CEOs. The emergence of neoliberal politics and TQM in response to the recession of the 1970s. Increasing interest in Business Process Reengineering. Civil servants branded as managers.
Critical Management (2000 – till date)	Existing literature emphasized the concept of “blaming the manager”. Increased popularity of entrepreneur, craftsmanship and professional practices. A deliberate shift from short-term to long-term management approaches.

Source: Own elaboration based on literature study

Geography based periodization

This period is distinguished for the inputs made by developments in management studies on both sides of the Atlantic as well as in Japan. Since there are several classifications referring to events both in America and in Great Britain, the author has, hence, decided to present one for each due to some visible similarities in the pattern of periodization.

The former is fully discussed in “The Evolution of Management Thought” (Wren, D.A. & Bedeian, A. G., 2009), which identified four periods. The first of the four is “Early Management Thought”, characterized by the authors as neither industrial nor Taylorian. This period had been referred to in other classifications, including Wilson, J.F. & Thomson, A. (2005) as pre-classical and by others as traditional period. This was then followed by “The Era of Scientific Management”, which is clearly demarcated as stretching from studies by F.W. Taylor to Hawthorne’s (1924) initiated by Elton Mayo, the forerunner of Human Relations studies. The next was “The Era of Social Person”. The period spans from E. Mayo’s Hawthorne experimentation to include studies by Gulick, L., and Urwick, L., in 1937. The latest of the four periods is “The Modern Era”. The period covers developments in management from the 1950s till present times. Wren, D.A., and A. G. Bedeian’s (2009) work has been criticized (Kreulen, S. & Kroeze, R., 2014), mainly for being silent on manifestations of management that emerged in post-World War II periods, including public sector related management thoughts.

The latter of the two periodizations concerned management in Great Britain’s industrial life. Although there are several other studies, the author has chosen the publication by Wilson, J. F., and Thomson, A. (2005) to illustrate the period as it highlighted developments/evolutions of various schools of management besides developments in Britain’s industry sector. The first of the periods enunciated by them was the “Pre-Classical Era” that came to a close in 1870s. It was a period that can equally be termed traditional as it emphasized personal relations. The second period “the Scientific Management”, in similarity with the American classification, covered the period from the 1870s to 1950s (Taylorian to E. Mayo). The next period witnessed the domination of multidivisional organizational (M-form) structures with a central office coordinating the activities of the outer units. This period (1960s – 1970s) was code-named in Great Britain as “dimensions of change”. The last of the four periods categorized in the British study is the “Managerial Capitalism Era” (1980s – 1990s), which had been seriously influenced by developments in neo-liberal politics. A major observation the work of Wilson, J.F., and Thomson, A., which can be considered a strength, is the consideration of management periods relying on several factors such as on-going changes in managerial functions, historical developments in companies, and economic history. Some authors like Kreulen, S. and Kroeze, R. (2014) have considered this multi-facial approach as a weakness, though.

The third, geographically based periodization is the “Japanese Management Movement”. The Japanese approach is considered characteristically different from the American and British approaches due to its greater degree of employee involvement. Some key features of the period were employee participation in decision-making processes; greater emphasis on employee welfare; bottom-up information flow, including initiatives; and intense emphasis on product/service quality. Moreover, top management personnel were seen as facilitators of task achievements rather than issuers of instructions. The period was also dominated by both the Total Quality Management philosophy that placed excellence in quality and customer satisfaction as top priorities to the envy of western management practitioners as well as the Just-In-Time (JIT) concept (Karsten, L., 2014), that served as the pioneer approach to flexibility in production patterns.

Periodization based on emergence of theoretical perspective

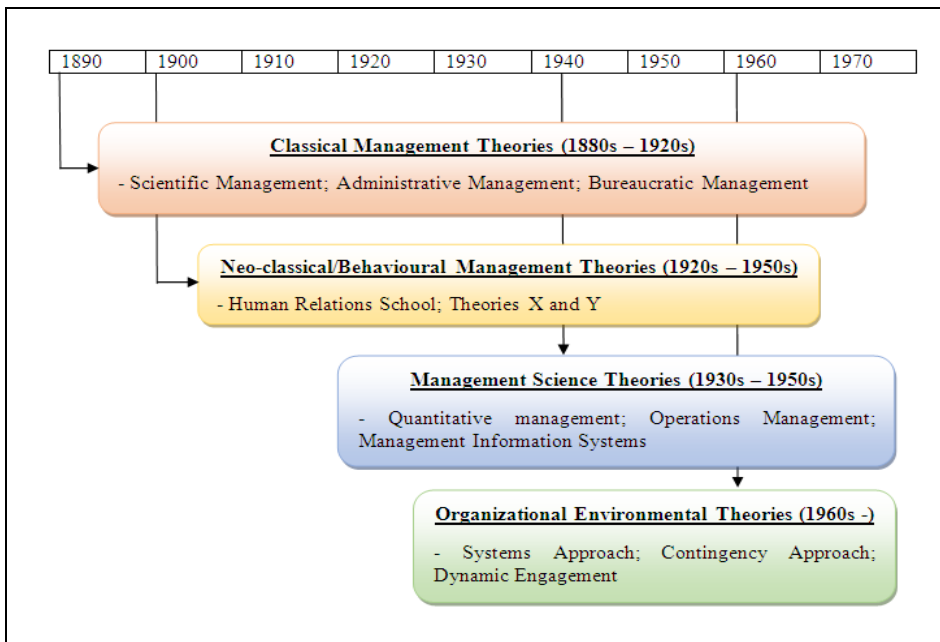
This periodization (Keulen, S. & Kroeze, R. 2014; Karsten, L. 2014) may well be considered a canon for most if not all historical categorizations in management studies as it is the most often cited by authors in subject literature. The popularity of this periodization may have been due to its direct links to schools of thoughts and their precursors. Generally, three periods (classical, neo-classical and modern management theories) are mentioned but there are also instances of separating the last into two, namely modern management and system approaches, thus making four periods. However, in keeping with the views earlier expressed that management as part of human endeavor dates far back before the industrial revolution, the author feels compelled to include a prior period, the pre-classical period.

Moreover, despite realizing that developments in management are evolutionary and hence they cannot be said to have a clearly defined terminal dates, the author has adopted “closed” time periods used in literature for simplicity of discussions. It should be emphasized, though, that the pictorial representation serves only visual purposes and not periodical delineations and hence should not be viewed as such. Subsequently, these periods (figure 1) will be briefly presented in this section.

1. Pre-Classical (Wilson, J.F., & Thomson, A., 2005), not represented in figure 1, sometimes referred to as the “Early Management Thought” or simply as the pre-industrial revolution period was dominated by traditional, perhaps informal forms of managing people and resources. Management during this period was devoid of any scientific approaches, the hallmark of classical theories. Sridhar, M.S. (2011) described the ‘management theories’ of that period as a proliferation of discrete practices. If F.W. Taylor’s approach, for example, was a clear departure from the “rule of the thumb”, then this can, by interpolation, be adjudged the predominant management approach that was

considered by later researchers as wasteful and inefficient. For example, the industrial revolution introduced specialization, standardization and synchronization of employee efforts with the intent of enhancing efficiency through wastes and costs reduction (Abuthahir Ali, S.M.S., 2014). This also necessitated the centralization of decision-making powers in the hands of top managers. The essence of the evolutionary change was, therefore to correct or eliminate the pitfalls of existing solutions or practices, substituting newer approaches for an improved state of affairs. Consequently, the changes resulted in the emergence of newer theories of management.

Figure 1. A theoretical approach to periodization and its leaders



Source: Own elaboration based on Karsten, L. (2014). Time as a Periodization of Management Practices. *Management & Organizational History*, Vol. 9, No. 4, 414–432; Cummings, S. et al. (2017). *A New History of Management*, Cambridge University Press, Cambridge, UK.; Jemielniak, D. & Latusek-Jurczak, D.(2014). *Zarządzanie: Teoria i praktyka w pigułce*. Wydawnictwo Poltext, Warszawa; Keulen, S. & Kroeze, R. (2014) Introduction: The era of management: a historical perspective on twentieth-century management, *Management & Organizational History*, Vol.9(4), 321–335, DOI: 10.1080/17449359.2014.982658; Daft, R. (2008). *Management 9th Edition*. South-Western, Cengage Learning, P. 33

2. Classical Period, noted to have taken its full swing with the industrial revolution of 1860s, brought management in organizations to a new realm with the application of engineering/scientific-based solutions to organized workflows, especially between departments or work teams.

The aim was to enhance performance through proper work-time management. It also witnessed the demarcation of roles with managers becoming more concerned with planning and monitoring, while employees were to deliver, attempting to meet organizational goals (Jagodziński, A., 2014; Holstein-Beck, M.D., 2013). The classical approach, in contrast to the industrial/ pre-classical practice, can be seen as the enthronement of managers, emphasizing rationality in management and employee efficiency (Sarker, M.S.I & Khan, M.R.A., 2013). Key researchers and fore runners of this period include Weber, M., (bureaucratic model studies), Fredrick W. T., (scientific management studies), including Gantt, H. L., and Gilbreth, F., & Gilbreth, L. Another major contributor of this period was Fayol, H., (theory of administrative process of management), who outlined what is presently referred to as the functions of management namely, planning, organizing, directing, coordinating and controlling (Jagodziński, A., 2014).

A thorough review of the literature revealed that both Taylor, F.W. and Fayol, H. demonstrated that proper resource (human and material) management can unleash organizational success. This notwithstanding, both can be seen to be categorically different. While Taylor, F. W. focused on organizational success through proper work management, Fayol, H. stressed the need for the proper management of organizations (Abuthahir Ali, S.M.S., 2014, Lachiewicz S. & Matejun, M., 2012a). Nonetheless, the classical approach has entrenched its structural approach to management where “clearly defined functions and detailed rules and autocratic leadership” (Sarker, M.S. & Khan, R.A., 2013) remains a characteristic feature.

A major weakness of this period for which it faced criticisms was the treatment of employees as a resource (human capital), which can only be induced to improve its performance if offered economic rewards. Another criticism is its universal “one-size-fits-all” approach to management which seems unsuitable for modern day organizations characterized by dynamicity and complexity. The focus of the classical approach was therefore increased outputs rather than human welfare, which became the concern of subsequent researchers.

3. Neo-Classical and Behavioural Period. The impact of the Great Economic Depression of 1929–1932 brought to light issues of the relevant roles of employees as a body in the workplace. The realization that previous approaches have failed to yield lasting performances coupled with employees’ dissatisfaction fueled the activities of human relations movements (Daft, R., 2004). Credit is given to the neoclassical approach for recognizing the organization as a system with its specific cultural patterns, characteristic group dynamics, leadership and motivation for a given work environment.

Studies were initiated to define existing, if any, relationships between employees’ working conditions and their productivity. The Hawthorne Studies in America (1920s) serve as a referral in subject literature. Elton Mayo, a leader of this movement concluded in his studies that levels of employee productivity are affected by prevailing psychological and social conditions at the workplace, for example the employee inclusiveness or its lack in decision-making (Abuthahir

Ali, S.M.S., 2014). This is in sharp contrast to earlier beliefs, or approaches that placed overwhelming emphasis on improving outputs, while the employee was considered as a resource rather than a participant in the efficient management of organizations with the aim of achieving set objectives. For the first time the employee welfare, at least at the workplace, was brought to a central position of interest in the management process of modern organizations. As was observed by Jemielniak, D. & Latusek-Jurczak, D. (2014), this new approach to employees is in itself motivating. This reflects the views of Mary Parker Follett who posited that the fundamental issue in organizations concerns the development and sustenance of both dynamic and harmonious human relations (Daft, R., 2004). This period also witnessed managers being entrusted with new roles, namely responsibility towards not only the stakeholders, or the public, but also to employees.

Although both approaches, classical and neoclassical, have made immense contributions to both theory and practice of organizational management, there are some distinctive features. Some commonly mentioned distinguishing factors in subject literature are presented in table 2.

Just as one would have thought that issues of productivity and employee satisfaction were settled forever, new approaches in management studies, modern management theories began to emerge in the 1950s and beyond. Modern management theories embody various fields of management studies. The literature study undertaken for this paper revealed that attempts have been made to harmonize these varied fields resulting in the identification of both management science school and systems theories.

Table 2. Factors distinguishing Classical and Neoclassical Approaches of Management

Distinctive factors	Classical Approach	Neoclassical Approach
Focus	Functions and economic demand of employees	Emotional and human qualities of employees
Application	Autocratic management and strict adherence to rules	Democratic process
Emphasis	Discipline and rationality in management	Personal security and social demand
Structure	An impersonal and mechanistic system	A social system
Employee objective	Remuneration and reward maximization	Accomplish organizational objectives
Human concept	An economic being	A social being
Constituent studies	Administrative management, Scientific management and bureaucratic management	Hawthorne experiment, organizational behavior and human relation movement
Relationship	Formal	Informal
Attitude	Mechanistic	Non-mechanistic, Organic

Source: Own elaboration based on: Sarker, M. S. I. & Khan, M. R. A. (2013). *Management History. Journal of Business and Management*, 14(6)

4. Management science school and operations research. The second world war, brought forth new challenges in areas of communication, as well as the exploitation of technological breakthroughs for military and ancillary purposes. Since conventional forms were not suitable for such tasks, cross-functional teams were constituted to resolve the odious difficulties using mathematical, statistical and quantitative models. Such teams were initially referred to as operational research teams, which later metamorphosed into the management science schools. This new area of management studies gained in popularity with the increasing application of high-speed IT technologies as well as the works of Drucker, P., (1946) published in *Concept of the Corporation*. The progress made by R. McNamara's "Whiz Kids" in 1950s/60s was also contributory (Lachiewicz, S. & Matejun, M., 2012a). Management science school has been criticized for excessive concentration on only aspects of the organization that can be interpreted through numbers without indicating any relationships between them.

A common feature of the various theories earlier discussed was that they dealt with organizational units independent of others. However, it is argued in literature they can readily complement each other rather than being mutually exclusive (Lachiewicz, S. & Matejun, M. 2012a). Subsequent theoretical developments, for example the organizational environmental theories, sought to improve upon such salient aspects of management studies.

5. Systems theories is a manifestation of the organizational environmental theory. Business organizations, even under divisional arrangements have never been made up of completely independent units. Rather, they have always constituted parts of the whole, sometimes more loosely than at other times or instances. This viewpoint became the main subject of interest to the Systems theory, which, in contrast to its predecessors views the organization as a collective of mutually impacting entities (Kostera, M., 2008), working for a singular common purpose. A similar idea can be deduced from Chester I. Bernard's thesis of maintaining a balance between organization's goals and the needs of individuals. He posited that the overall organizational objective is greater than the summary performance of its constituting parts. The attainment of a common organizational objective was also emphasized by Kraczla, M. & Lis, M. (2014) and Daft, R. (2008). To them the systemic approach involves managing mutually interrelated organizational processes in such a systematic way to enable the efficient and effective accomplishment of set goals.

Aspects of Systems Theory often mentioned in subject literature are the General Systems Theory (open and closed systems), Contingency Approach as well as Dynamic Engagement that views the organization as a system that is undergoing continuous adaptive process. The need to understand organizations from both the contingency and dynamic approaches was addressed by Koźmiński, A.

& Piotrowski, W. (2004), Kostera, M. (2008) who submitted that modern organizations ought to be capable of adapting to changing business environments. Business organizations' activity of transforming inputs to outputs involves its interaction, in varying degrees, with their environments (Armstrong, M., 1992). Global events of late twentieth century, spurred by high-tech ICT has necessitated intense intercultural relationships in organizational existence in the international arena. The increased role of digital technology in advancing management studies and practices was also discussed by Cummings, S. et al. (2017). For modern managers that venture into international markets it is not enough to be good at handling employee relationships, but they have to be able to incorporate intercultural knowledge and skills in organizational management.

Another manifestation of the management science school is Theory Z by William Ouchi (Aithal, P.S. & Suresh Kumar, P.M. 2016), which is a blend of both the American and Japanese approaches to business. Highlights of theory Z include collective participation in decision-making with bottom-up initiatives, long-term employment and most significantly the holistic approach to employee issues.

In summarizing historical developments in management, especially modern management, it is important to note the perspective evolutions of employees, managers and the organization itself until date. The position of the employee has undergone tremendous changes, transforming from one who only reacted to orders and was seen as incapable of taking one's own initiatives, for example in classical theories and theory "X", to being seen as a crucial entity of the achievement of the organization's goals in neo-classical and modern management theories. Indeed, the behavioral theory rests achievement of organizational objectives on the level of employee satisfaction, hence the need for appropriate motivation of employees by management. Modern management, for example TQM or theory Y emphasize personnel empowerment by encouraging bottom-up initiatives, especially in their areas of operations.

The manager in classical theories was primarily a giver of orders, using coercion as part of managerial skills to secure performance. However, in later theories, for example Theory Z, the manager became more of a facilitator, who saw performance as a joint effort of both management and employees. This opinion is reflected in the works of Barnard, Ch. I., Mayo, E. and D. McGregor's theory "Z" (Lachiewicz, S. & Matejun, M., 2012a). This led to increased managerial sensitivity to staff satisfaction and empowerment, in the form of delegation of both responsibility and authority.

The organization, which had been perceived mostly as an independent entity in earlier theories, started to be more responsive to its external environment such as stakeholders, social and natural environments, following the less than expected levels of performance, for example during the industrial revolution. A close study of the systems theories leaves no one in doubt that business success of modern organizations depends on their abilities to create enabling environments,

on their level of cultural awareness and their ability to participate in synergies or clusters (Holubčík, M. & Soviar, J., 2016), hence emphasizing the interdependency of modern organizations not only in the international arena, but also within national economies.

The various aspects of deliberation by researchers in the field of management, many of which are considered leaders of schools of thoughts, have also resulted in multiplicity of definitions of management. Some commonly cited definitions, relying on the extensive literature review are presented in the next section.

1.1.2. Enterprise management: Definitions

Management is a continuously evolving phenomenon in line with the dynamic nature of contemporary business environments and it is difficult attempting to provide a universally acceptable definition. Hence, some authors, instead of defining “management” have, according to Pierścieniak, A. (2008) resorted to defining its attributes. This is the approach adopted in this dissertation in trying to understand what enterprise management entails.

One of such definitions looks at the changeability of global business environments and its subsequent implications for enterprise management practices. A specific nature of these changes is their spontaneity and the resulting turbulences in global markets, which makes the business environment and the decision-making process more volatile. Since organizations tend to seek stability, management would therefore utilize more efforts/ resources to sustain a desired stability. The situation had been described by some authors like T. Peters (Daft, R., 2008:) as chaotic. This was also stressed in the definition offered by Koźmiński, A. and Piotrowski W. (2004), that management can be likened to a wading through chaotic situations (in Pierścieniak, A., 2008). The chaotic nature of business development is an expression of overbearing uncertainty of decisions taken in enterprise's, including SMEs, daily life. One is never sure if decisions taken today in present circumstances will be efficient enough for next day's situations. Management thus involves being able to capture and analyse available information on the basis of which owned resources can be used to ensure organizational success. Wading through chaotic business environment, in practice, can therefore imply the extent of an organization's ability to continuously adapt to uncertainties (Kostera, M., 2008) of emerging circumstances. This definitely calls for creativity in management by managers.

Since managerial work is considered to be a continuous adaptation to uncertainties, management can therefore be likened to a process of events that begins with inputs and terminates with outputs that meet expected performance levels. M. Armstrong's (1992) *“deciding what to do and then getting it done through the effective use of resources”* and M.A. Mallar's (2010) *“an appropriate tool that can be considered fundamental to guide an organization towards*

achieving its goals” clearly support the argument. The emphasis, in this process-based definition of management, is transiting from effective use of resources through to achieving goals of the organization, survival and customer satisfaction. If such lofty goals are to be achieved, then the steps and decisions taken cannot be anything but sequential and well defined. Sequencing denotes procedural approach to getting things done, hence it is not uncommon to observe in subject literature that discussions often portray management as a process of planning, organizing, motivating and controlling the activities of organizations, including their stakeholders, to achieve organizational goals. Management can, therefore, be seen as a set of procedures that enable one to focus on enterprise activities, intent on optimizing the activities for better outputs. This resonates with ideas of classical models of managerial work, which according to Fayol, H., and Gullick, L. (Armstrong, M.,1992) is a framework consisting of clearly defined and mutually dependent activities. The preceding discussion, besides outlining the process approach to defining management, also draws attention to the role of the manager.

Definitions of management that emphasize the role of managers can be found in subject literature. For example, organizational management is defined by Koźmiński, A. & Piotrowski, W. (2004) as coping with varying situations, favourable and less favourable, in business and attempting to deal with conflicts, transforming them into factors that enhance improved performance. Both authors subsequently argue that management is the ability to define organizational reality based on the availability of ideas, people and their existing interrelationships, material and financial resources, etc., as well as their quality. Achievement of objectives often necessitates cooperation between an organization’s management team and employees. This is significant because employees have varied emotional attachments, work experience and personality traits, making conflicts of interest inevitable aspects of organizational life. Reconciling these varieties of employee dispositions to enable accomplishment of an organization’s goals should constitute a crucial aspect of management. A case in point is Morawski M. (2010) who argues that knowledge management is the transformation of tacit knowledge – a tool at the disposal of employees – into codified knowledge for enhanced organizational performance in a knowledge-based economy. The idea of knowledge management, understanding its application was also discussed by Lewicka, D. (2010) in her study on “*Creative Knowledge Management*”. Świątek-Barylska, I. (2010) had also, in discussing management, dwelled on the roles of managers as initiators and propagators of organizational core values. Organizational core values, according to her are the summation of the co-existence of its two major sources, namely, the entrepreneur/ management team and the employees. Since core values undergo evolutionary transformations, there is a need to nurture them to perfection through appropriate management.

Management has also been defined both from subjective and objective perspectives. Management as an endeavour is aimed at achieving organizational objectives and it can be argued that the relative level of the achievable objectives will depend on the quality of managerial work, its ability to harness available resources. Management defined by Drucker, P.F. as work (endeavour) or skill that possesses its own identifiable tools and techniques corroborates this view. The role of skills, tools and techniques or procedures in attaining qualitative organizational goals is also accented by other authors. For example, Daft, R. (2008) defines management as “attaining organizational objectives in an effective and efficient manner through planning, organizing, leading and controlling organizational resources”. Management, as per this definition, focuses on objective aspects that are achievable through a carefully thought, organized, selected activity with steps mapped out to steer it to a satisfying accomplishment. Efficiency of management, according to the author, is achievable through the proper planning, organizing, and controlling of an organization’s resources. Similar conclusions were provided by de Oliveira, J. et al. (2015) in their empirical studies concerning the roles of owner-managers in the management of SMEs.

Management has also been studied and defined from a much broader and traditional perspective. For example, management has been argued by Koontz, H. & O’Donnell, C. (Olum, Y., 2004) as the creation and sustenance of organizational environment that encourages efficient and effective teamwork of employees to achieve the overall objective. Although this definition rests on the creation and sustenance of procedures (bureaucratic/administrative theories), it also accents the well-being of employees (behavioral theory) as well as the functions of the manager, by implication, whose ultimate aim is to generate surplus for the benefit of its stakeholders. Management can thus be seen as managing of systems.

Despite the difficulty of defining “management” the literature review undertaken has shown that enterprise management can be viewed using varied approaches as well as theoretical considerations. The definitions of scholars presented in this chapter look at management using varied approaches such as abstract, subjective, objective, process, empirical study and managerial perspectives. Although the definitions are not mutually exclusive, it is difficult to provide a singular definition to cover all the approaches. Hence, the author has for the needs of this dissertation that focuses on the owner-manager as a key figure in the functioning of SMEs, the term “management” has been operationalized thus:

“Management is a continuous effort / activity of managers aimed at overcoming uncertainties of business environments, involving the optimal utilization of organization’s available resources through adequate acts of planning, organizing, leading and controlling towards the accomplishment of enterprise goals.”

1.1.3. Managerial Functions in SME: Specific features

The definition of management as applied in the previous section is applicable to any type of organization, a business or administrative entity. Business organizations are similarly defined globally although they may vary in their types and sizes. A business organization/enterprise has been, for example, defined by the European Union as any entity that engages in any form of business activity, be it family-run, self-employed, partnerships or public limited companies (EC 2004). The Polish Act on the freedom of economic activity, however, specifies in addition that such an entity may not be more than 25% dependent on entities not qualifying as SMEs (Dz. U. 2004 nr 173).

Small and medium-sized enterprises that fall within this group have, however, been clearly delineated. It is worthy of note, though that despite the common application of the terms “small” and “medium” enterprises, both in practice and in management studies, they are only conventional terms that enable subjective understanding of the subject matter (Lachiewicz, S. & Matejun, M., 2012b). The literature review conducted clearly indicates that the delineation of the SME group varies globally (table 3) and follows three, qualitative, quantitative and mixed, categorization patterns (Świeszczak, M., 2016).

The quantitative categorization, for example, involves the use of measurable parameters like size, amount of capital inputs, performance levels or outcomes of activities undertaken by the company/ organization. It is argued in literature that such categorization enables clear legislative definitions and application of relevant laws or provisions. The delineation provided by both the European Union and the Oslo report, for example, reflects this categorization. In it an SME is an enterprise that employs less than 250 staff with an annual turnover less than 50 million euro and an annual total balance sheet not in excess of 43 million euro (2003/361/EC, art. 2). Table 3 shows the variation in criteria applied in three countries to classify types of SME. The European Union additionally applies financial indicators like the amount of turnover or balance sheet for the previous year to specify type of SME.

Table 3. Classification of SMEs using quantitative delineation criteria

Details / indicators		Micro	Small	Medium
EU / Poland	Employment	<10 staff	≤ 50 staff	≤ 250 staff
	Turnover	≤ 2 m €	≤ 10 m €	≤ 50 m €
	Balance sheet	≤ 2 m €	≤ 10 m €	≤ 43 m €
Canada *	Employment	< 5 staff	<100 in production; < 50 in services	<500 staff
Australia*	Employment	<5 staff	5-19 staff	20-200 staff

*Source: Own elaboration based on: European Commission (2004). The New SME definition. User guide and model declaration. Enterprise and Industry Publications, p.1-52.; * Świeszczak, M. (2016). Potencjał innowacyjny firm z sektora małych i średnich przedsiębiorstw. Przykład województwa łódzkiego. Wydawnictwo Uniwersytetu Łódzkiego*

The qualitative categorization, in contrast, uses immeasurable parameters, defining the structural specificity and factors that distinguish them from any other organization. Although many of the features can be observed in literature, only some more commonly cited ones will be listed here. These include:

- a) the personality of the owner-manager and his/her dominant position and influence in the company's existence;
- b) capital resources, which is usually the owner's equity or from family members, especially the initial start-up capital;
- c) a simple, less formalized organizational structure with a centralized decision-making point as well as direct and informal communication lines;
- d) independent role of the owner-manager, the risk bearer, implementing own ideas;
- e) flexibility of activities and aptness in degree of response to evolving circumstances and customized needs of customers;
- f) selection of personnel often based on personal contacts or recommendations.

SMEs, like other business organizations participate in business environments characterized by uncertainties, requiring continued adaptability of managerial practices (Koźmiński A. & Piotrowski, W. 2004; Dudzik-Lewicka, I, 2012; Piekarz, H. & Stabryła, A. 2005; Kasiewicz, S. et al. 2012). Since the concern of this dissertation is the owner-manager managing an innovative SME, the specific nature of management in these enterprises will be discussed in the following section. This is in recognition of the fact that challenges, managerial or otherwise, from the management studies perspective in a knowledge-based, technologically driven environment are by no means daunting.

To square up to such challenges, while aiming to achieve one's own objectives of engaging in business, owner-managers will need to exercise much ingenuity in their management approaches/strategies. Strategy is, in subject literature, often associated with taking decisions, choosing between alternatives, deliberate steps to be followed by owners, managers or board of director for the achievement of long-term objectives. This line of thinking is reflected in the definition provided by Krzysztof Obłój (Jemielniak, D. & Latusek-Jurczak, D., 2014), namely, that strategy is a coherent concept of actions adopted by management, the owner-manager in case of SMEs, whose implementation aims to achieve the organization's most fundamental long-term goals.

Management studies discusses varied types of strategies (Kasiewicz, S. et al., 2012; Mikulska, A., 2010), including strategic management (Dudzik-Lewicka, I., 2012; Kaleta, A., 2005), growth management (Krupski, R., 2005; Piekarz, H. & Stabryła, A., 2005), and innovation management (Kraśnicka, T. et al., 2014) to mention but a few. Small and medium-scaled enterprises adopt strategies in their attempts to resolve existential problems through the formulation and/or adoption of business concepts relative to their mission, giving due consideration to current market configurations.

Small and medium-scaled enterprises as a business sector cover a large spectrum of organizations that differ not only in size, ownership and management but also in their specific area of activity. The heterogeneity of this group also means that they individually may respond differently to external impulses originating in their local environments. A similar opinion was expressed by Piekarz, H. et al. (2005), who posit that SMEs' limited resources place them in a weaker position relative to financial institutions, local administrative authorities, and stakeholders. This weak position of SMEs compounded by the fact that they operate in volatile business environments necessitates that SMEs use a mix of strategies depending on prevailing circumstances in order to accomplish their primary goal of survival. In consequence, the type of management strategy adopted and implemented in a given SME ought to reflect responses to the following questions.

- Is the strategy aiming to focus on a core market area (local, regional, national or international)?
- Is the strategy needed for a specialized business activity or to enable the organization to diversify its activities?
- What level of cooperation with stakeholders or market penetration is the strategy required to address?
- What level of competition will be handled using the strategy? A different management strategy will be demanded for a market segment (niche) but another for a more global arena.
- What is our goal of engaging in business? Is the business growth- or survival-oriented?

Knowledge about strategies applicable in enterprise management is essential, but more essential from the daily activities of an SME aimed at achieving its key objective is knowing what the owner-manager does and how he goes about successfully running the enterprise. Since every manager is different and the enterprise is responsive to varied influences of its external environment, managers have to adopt varying styles or approaches of dealing with emerging situations. Two approaches, process and roles, also referred to as functional and roles, are often mentioned in management literature (de Oliveira, J., et al., 2015; Jones, O., 2005).

The process approach also referred to by some authors as managerial work or the administrative line of activities (de Oliveira, J. et al., 2015) is a study of the manager from the perspective of what they do and how they carry out their work relative to the formality position (Ciekanowski, Z., 2015) as a manager. The work that managers do, generally referred to, following H. Fayol's studies, as functions of management, is elaborately discussed in management literature (Koźmiński, A., 2000; Lachiewicz, S. & Matejun, M., 2012a; Ciekanowski, Z., 2015; de Oliveira, J. et al., 2015). The number of managerial functions varies in subject literature ranging from H. Fayol's five described as more suitable for

“mechanistic” organizational enterprises with formalised bureaucratic management patterns than “organic” types (McNamara, D.E., 2009). However, the most commonly discussed functions of management in subject literature namely, planning, organizing, leading and controlling are covered in the discussion.

Planning activities involve determining organizational objective and deciding on better channels of achieving them. Olum, Y. (2004) and Chrostowski, A. & Szczepankowski, P. (2004) sees it a decision-making procedure that entails choosing between alternative pathways of achieving the agreed objectives. Planning cannot be devoid of information, hence gathering of information and their analysis to help in designing guidelines and objectives is emphasized (de Oliveira, J. et al. 2015). Planning also helps to encourage employee involvement in the implementation and accomplishment of enterprise objectives. Planning is also looking beyond present situations, designing policies, objectives, budgets, etc., to respond efficiently and promptly to emerging challenges or opportunities. An essential part of management planning is envisaging HR needs through adequate staffing to enable an enterprise fulfil its statutory objectives. Planning is procedural, involving several stages and grows in complexity as the enterprise gets larger and the organizational structure becomes more complex.

Organizing in its broad terms involves the structuring, ordering and allocation of organizational resources and activities. Organizing is defined as providing everything –financial (cash flows), material (supplies and deliveries), and personnel (manpower planning, recruitment, training and remuneration) – that is useful for the proper functioning of the enterprise to achieve its planned objectives (Leonard, K. 2019). Organizing also involves the structuring of the enterprise that facilitates unhindered information and knowledge sharing or dissemination for increased efficiency of performance. Allocation of resources aims at optimization of enterprise activities as key employees can be assigned specific tasks for which they are held responsible. Hence delegating of responsibilities and authority as well as coordinating are considered important constituents of the organizing function of an SME owner-manager.

Leading is exercising influence, both formal and informal, as well as inspiring and motivating subordinates to be more committed in achieving organizational goals. Leading is an interpersonal aspect of management function that calls for efficient communication approaches in directing the activities of subordinates. Oblój, K., (Kostera, M. et al., 2004) postulates that a good leadership ought to possess skills like:

- the ability to create vision of the desired state of affairs,
- creative and innovative mindedness,
- tactfulness and diplomacy, and
- the ability to communicate persuasively and make quick decisions.

Controlling as a management function involves setting measures of standards for planned objectives, monitoring levels of accomplishment and in

the case of necessity implement corrective measures to eliminate inconsistencies. Controlling is defined in management literature as a result-oriented process operation implemented by management through planning, controlling and taking corrective actions to ensure efficiency and effectiveness (Szczepankowski, P., 2004). Efficient controlling mechanism is to identify and neutralize any unforeseen obstacles that are capable of derailing the achievement of planned activities.

It is an undeniable fact that management, including strategic management, is a significant tool in managing any business, be it private or commercial, small or large. The question often asked is if smaller enterprises should engage in and/or are capable of engaging in strategic management similar to larger organizations. Surveys conducted among SMEs in Poland point to the conclusion that each organization, irrespective of its size, needs elements of strategic planning although not in the scale practiced in large organizations (Kaleta, A., 2005). A similar study by Tabaszewska, E., (2005) revealed that management in SMEs is characterized by:

- lack of use of strategic analytical methods and formalized strategic planning,
- owner-managers who apply intuitive ways of formulating long-term objectives,
- shorter planning periods, usually 1-3 years. The smaller the enterprise, the shorter planning periods,
- strategic decision-making is usually the exclusive domain of the owners, without employee involvement,
- strategic concepts develop slowly, as contingency plans in response to evolving market situation and sometimes half hazard,
- interaction with customers and suppliers serve as main sources of information for strategic planning.

The foregoing discussion does clearly indicate that SMEs engage in strategic planning and management although at levels not comparable to larger organizations. This according to several authors, for example Lachiewicz, S. & Matejun, M. (2012a); Kaleta, A. (2005); Dudzik-Lewicka, I. (2012) and Tabaszewska, E. (2005) is due to the specificity of SMEs. Their specificity which can, in some circumstances, be counted as added values to be exploited in varied circumstances include:

1. Exceptional flexibility. SMEs display high adaptability and are able to modify their business, product or service profiles in a short period of time,
2. Limited employment, which does not favour elaborate, formalized planning. Strategic planning is, hence confined to ideas conceived and held by the owner-mangers.
3. Financial constraints prevent many from taking benefits of business consultancy,
4. Smallness of size favours quick decision-making, including strategic decisions as the owner-manager is able to deal with emerging circumstances based on his knowledge of the enterprise,

5. Excellent knowledge of their local / niche markets and micro-environment enables owner-managers to quickly identify and respond to possible threats. Responding owner-managers in a survey (Kaleta, A., 2005) classified this as a special attribute in dealing with the exigencies of business life.
6. A direct command system – a consequence of a functional organizational structure,
7. Customer-oriented as their survival hinges on customer satisfaction,
8. Leadership knowledge is hampered or lacking.
9. Lack of delegation of authority which could be the result of inefficiency in communication as plans are not often documented.

1.2. Owner-manager's role in SME management

1.2.1. SME owner-manager: definitions

Small and medium-scale enterprises have been recognized in most countries, technologically advanced and less advanced, as key players in national economies hence the most important person in these enterprises, the owner-manager has generated lots of interests. Attempts have been made in management literature to identify the personality. Various terminologies have been used synonymously or interchangeably in literature to refer to the same, key player in SMEs (de Oliveira, J. et al., 2015) including manager, owner-manager, entrepreneur, entrepreneur-owner, entrepreneur-manager or the owner of a business.

Management literature applies various definitions to specify who the owner-manager of SME is. Some commonly occurring definitions are mentioned in the section. Wachowiak P. (Walicka-Chowaniec, K., 2012) for example, defines the manager as a person who has the skills to influence the behavior of employees and is able to manage them to accomplish expected objectives. Stoner, J. A. F. et al., (2001) on the other hand see the manager as a person who is responsible for managing the organization's activities leading to the achievement of its goals. Both definitions look at the manager from very specified, functional and roles, perspectives with the intent to achieve organizational, socially useful objectives.

Some other definitions view the owner-manager from a causal perspective. For instance, de Oliveira, J. et al. (2015) sees the manager as an individual owner, who establishes and manages a business organization, aiming to excel in his/her personal goals. A similar approach is adopted by the *Business Dictionary* and *IGI –Disseminator of knowledge*. The former affirms that a manager is someone who sets up and manages an organization for the main purpose of enhancing their personal well-being as it serves as the primary source of livelihood. Similarly, the later, *Business Dictionary*, assumes the

manager to be an entity who owns a business organization with the aim to profit from its activities. Both decisions therefore define the owner-manager from the objective perspective.

A broader definition provided by the Swedish Entrepreneurship Forum (Carlsson, B., et al., 2013), for example, distinguishes the entrepreneur as a person, a specialist in taking critical decisions, regarding the organization of an enterprise's scarce human, material and non-material resources and as the one who has the ability to identify and exploit opportunities. Similarly, Daft, R. (2010) had also defined the entrepreneur as one who recognizes a viable business idea, assumes the risk to invest in it to reap anticipated profits. This view is corroborated by P. F. Drucker's "An entrepreneur is the one who always searches for change, responds to it and exploits it as an opportunity" (Pahuja, A. & Sanjeev, R. 2015).

Even a much broader definition with legislative connotations is offered by the OECD, (2002). It states that the owner-manager of a registered enterprise is a person with a controlling ownership of the enterprise, who is vested with authority to represent the enterprise in matters of contracts, including others. The key difference between this and other definitions is that the owner-manager / manager needs not hold total ownership of the enterprise.

However, the literature study also revealed a much narrowed, time restricted definition of an entrepreneur, provided by Williams, C.C. (2008), who defines entrepreneur as somebody who sets-up a new enterprise that is not more than 42 months in existence. Despite the existence of some differences, both terms, owner-manager and entrepreneur, have continued to be used interchangeably in subject literature and should therefore not be seen as mutually excluding.

Following this possible variation of understanding, the author proposes an operational definition of owner-manager for the needs of the dissertation: ***the owner-manager is a person, who owns a business entity (in SME), and manages its daily affairs with the intent to accomplish outlined objectives, personal or social.***

1.2.2. Owner-manager's roles in SME

Managers have to, as a duty, respond to varied influences of its external environment while managing the affairs of their organizations. Their activities as managers are viewed from two perspectives namely, functional, dealt with in previous sections and roles, which is the concern of this section. Micro and small enterprises, the dominant group in SMEs, do not have elaborate staff to deal with the functions of management as illustrated earlier. Nevertheless, their owner-managers have to perform varied activities for the accomplishment of set objectives. This aspect of the owner-manager's responsibility has been referred to as "managerial behaviours", "humanistic line of activities", "managers' intuitive

behaviours” or simply “roles” (de Oliveira, J., 2015; Koźmiński, A.K., 2004). Kiełtyka, L. (2016) in discerning between the two activity areas of the owner-manager emphatically points out that the role function is more associated with the demands of the position and not the formal authority, which is associated with management functions. Managerial roles are also described in management literature as socially expected set of behaviours and can be created within a given organization based on patterns of conduct (Ciekanowski, Z., 2015) that prevail in such organizations. It can be argued, based on Z. Ciekanowski’s, that managerial roles are distinctive and relate to the organizational culture that is identifiable with a given enterprise. Mintzberg, H. (Cieślińska, K., 2007), a pioneer in the study of managerial roles coined the expression “organized set of behaviours”. The term carries a connotative meaning, indicating that such behaviours are purposeful and oriented towards the achievement of objectives of the organization.

Despite the variations that exist in role typologies in management literature, the framework provided by Mintzberg, H. (Cieślińska, K., 2007) has prevailed and the discussion that follows is based on it. The understanding is that for managers to successfully perform their roles they would need to develop sustainable interpersonal relationships within the organization and also with external entities, source for useful information that he/she efficiently disseminates between subordinates and hence facilitate decision-making. Table 4 illustrates the various roles performed by contemporary managers with brief descriptions.

A detailed analysis of the owner-manager’s roles, decisional, informational and interpersonal, in SME management encourages one to see him/her as the undisputable resource center and facilitator of SME activities.

Table 4. A brief description of roles performed by owner-managers in SMEs

Roles category/ constituent elements		A brief description
1		2
Interpersonal roles	Liaison	Maintains relationship with external entities, performing essential activities for the enterprise
	Leader	Influences employees work applying motivation techniques to achieve enterprise goals
	Figurehead	As a representative (legal or otherwise) of the organization with external entities
	Visionary*	Sets the pace for new trends, introducing innovative ideas
Information roles	Monitor	Scans the environment for latest information to facilitate efficient decision-making
	Disseminator	Shares and propagates relevant information within the organization, using suitable communication tools
	Spokesperson	The company’s mouthpiece in maintaining contacts /relationships with external entities

1		2
Decision roles	Entrepreneur	Enhances capabilities of subordinates, using varied programs; prepares employees for new roles & presents new ideas
	Trouble-shooter	Efficiently responds to crisis situations, handles conflicts and eliminates negative emotions
	Resource allocator	Decides where and how company's limited resources should be put to use, prioritizing tasks
	Negotiator	Partakes in negotiations with interest groups on behalf of the company

Source: Own elaboration based on Cieślińska, K. (2007). *The basic roles of manager in business organization*. Poznan University of Life Sciences, 1–12; Ziemkiewicz-Gawlik, I., Marczyk, M. (2014). *Rola menedżera w nowoczesnej organizacji. Przegląd Naukowo-Metodycznej. Edukacja dla Bezpieczeństwa nr 1*, 177-187; Ciekanowski Z., (2015). *Rola menedżera w organizacji*, „Zeszyty Naukowe Uniwersytetu Przyrodniczo-Humanistycznego w Siedlcach. Administracja i Zarządzanie” nr 107, 185–195; *Kieltyka, L. (2016). *Rola Menadżera we współczesnych organizacjach, Przegląd Organizacji nr 4*, 8, 4–11

1.2.3. Distinctive features of the owner-manager of SME

Although studies in entrepreneurship is a relatively young area of management and scientific studies, the role of the owner-manager in SME management in their pursuit of higher performance has received increased attention. This is also attributable to the growing conviction in SMEs that their long-term growth and hence their survival relies on the possession of clearly defined strategies by their managerial staff (Popławski, W. et al., 2008). Boubakery, B. (2015), for example, relying on literature review asserts that the pattern and quality of business in an enterprise is a reflection of the personal values the leader brings in and cultivates in the company. Since the owner-manager is the main or sole financier, key decision-maker and an important driver of performance in SMEs, his impact on the business climate, engaging in developmental activities, including innovation cannot be disregarded. This, according to Wisenthige, K. & Guoping, C. (2016), is due to the fact, that owner-managers are the decision-making powerhouse in SMEs and in so doing, they are able to effectively impact on strategic development issues. Although several studies in managerial roles and functions tend to concede that the main objective of owner-managers' concern is enterprise survival (Mitchelmore, S., & Rowley, J. 2013), especially in a growing competitive market environment, it cannot be considered as definitive as it would mean delimiting or caging the potentials that SMEs possess, and are capable of deploying whenever such needs arise. Prange, C. & Pinho, J.C. (2017) have postulated, in their studies into international performance of SMEs, that an enterprise's decision to go international is contingent on the owner-manager's inclination, based on his personal goals/ ambitions, prior and current knowledge as well as skills (Lans, T. et al., 2016), to engage in such activities.

Owner-manager characteristics/ traits

The challenges of performing managerial roles and functions require that such persons should possess certain characteristics and competences/skills. The characteristics or personal values of the owner-manager are often manifested in various situations while performing his/her daily roles and functions. Identifying the personality traits of owner-managers is valid as it advances our knowledge concerning the managerial approaches that are adopted in pursuit of self-devised objectives or prevailing in a given enterprise. Boubakary, B. (2015) also stresses the need to undertake such studies as the owner-manager personal values are expressions of his/her motivations to accomplish specific objectives of own and family security, self-fulfillment and independence.

Available literature devotes much space to the role of owner-managers in SME's development, as such enterprises are often adjudged as *extensions of their individual personalities* (Boubakary, B. 2015). A short description of some of the characteristics of the entrepreneur, the generator, disseminator and implementer of innovative ideas OECD (2015) in an enterprise is hereby presented.

The owner-manager of an innovative enterprise, according to Lewicka, D. (2010), should be someone who models appropriate attitudes and behaviours, enables the atmosphere of cooperation and innovative climate to flourish, furthers the acquisition and dissemination of knowledge and has a creative and rational approach to enterprise management. The owner-manager's quality of decisions and their efficiency of communication is influenced by his knowledge, experience, his/her inter-relational and communicative skills. This characterization of the owner-manager seems to be corroborated by studies conducted by Mohsin, A. et al. (2017). Indeed, arguments that decision-making in SMEs is often spurred by emerging opportunities – a reactive rather than pro-active management approach are corroborated in studies by Kasiewicz, S. et al. (2012). Entrepreneurial characteristics sought after for enterprise management were categorized as behavioral, demographic, psychological (Sanchez, J. 2011) as well as antecedent attributes (Blackburn, R.A. et al. 2013).

Antecedent qualities include education (*industry-related*) and prior experience (*industry and position related*). Literature also draws attention to the significant role of the owner-manager's age, level of education and gender. Cooney, T. M (2012) had, while studying the entrepreneur's role in the growth of small enterprises, drawn attention to motivation, education, management experience, number of founders, prior self-employment, family history, training, age, prior sector experience and enterprise size, experience, gender, prior business failure and social marginality as characteristics identifiable in a small business owner-manager. Moreover, Daft, R. (2010) argues that a manager's behavior in work situation, his relationships, especially his ability to understand others is influenced by his personality characteristics, values, amongst others. Decyk, K.,

& Juchniewicz, M. (2012), concede that owner-managers' personality characteristics exact indisputable influence on the innovativeness of micro enterprises.

Entrepreneurial characteristics sought after for enterprise management were grouped into three categories, namely behavioural, psychological and demographic by Sanchez, J. (2011). Similarly, Blackburn, R.A. et al. (2013) had mentioned, earlier in their study, antecedent attributes besides psychological characteristics as traits to be possessed by entrepreneurs to fulfill their roles and functions. Antecedent qualities include their education (industry-related) and prior experience (industry and position related). Attention was also drawn to the significant role of the owner-manager's age, level of education and gender. A comparable conclusion was also reached by Daft, R. (2010) in his book "Management", where he opined that a manager's behavior in work situation, his relationships, especially his ability to understand others is influenced by his personality characteristics, values, amongst others.

A much wider, all embracing approach seems to have been adopted by Cooney, T. M (2012). He had, while studying the entrepreneur's role in the growth of small enterprises, drawn attention to motivation, education, management experience, number of founders, prior self-employment, family history, training, age, prior sector experience and enterprise size, experience, gender, prior business failure and social marginality as characteristics identifiable in a small business owner-manager. Some authors have gone further and decisively asserted that owner-managers' personality characteristics exact indisputable influence on the innovativeness of micro enterprises (Decyk, K. & Juchniewicz, M., 2012).

The constituent factors of an entrepreneur's characteristics mentioned in the paragraph do not in any way exhaust the examples of such characteristics. However, the author has decided to focus on those commonly mentioned in literature for the purpose of the study, namely education, prior experience, age, gender, and training.

Owner-manager's education

It has been demonstrated in literature that educational level of enterprise owner-managers influences positively on their business performance and growth (Cooney, T. M. 2012). The author in addition concludes that educated business owner-managers are also noted for their higher propensity to engage in networking and collaborative activities. The superficial approach of the argument could be understood to mean that high-flier status in business is a prerogative of educated owner-managers. Although this argument sounds convincing, the author wishes, however, to postulate that it is over simplifying as the mere possession of a higher qualification does not necessarily translate to business success, including in SMEs, as there exist examples of successful business owners with only elementary, secondary or non-sector related education. Entrepreneurial success

and the willingness to engage in innovation for business growth, as provided in management literature depends on other equally significant factors.

Prior Experience & knowledge

Venturing into new business requires the possession of skills and knowledge as non-material capital the owner-manager brings into the enterprise. Such skills and knowledge could have been acquired through formal education and /or in previous employments. The value that such prior experience contributes to the new enterprise is even more if it is brand, sector or industry-related. However, studies have been unable to provide evidences of direct links between prior work experience and entrepreneurial career intentions (Miralles, F. et al., 2015). The authors, therefore, conclude that the impact of prior experience may be determined indirectly, through its impacts on knowledge. This possible correlation between experience and knowledge was also mentioned by Załoga, W. (2013), postulating that experience encourages the acquisition of new knowledge, which in turn influences the acquisition of new skills.

Knowledge required for entrepreneurial performance can be acquired by getting involved in hands-on organization tasks and having to cope with emerging difficulties. The knowledge gained through such practical exposure is considered far beneficial for taking up careers in entrepreneurship. This argument is supported by data from Poland (Pokojska, J. et al., 2017), where over 60% of women starting their career as entrepreneurs had had years of experience in similar brand/sector or in a managerial position.

Age

Younger business owners are, according to Blackburn et al. (2013) more educated and more readily embrace information sharing and joint ventures activities than older business owners. Entrepreneur's age has also been studied in relation to performance (Osunsan, O.K., 2015) and employee autonomy / phase of growth (Kozubikova, L. et al., 2016). Despite the assumption that younger business owners are more motivated, energetic, committed and are less risk averse, which has led some researchers to suggest that businesses owned by younger entrepreneurs perform better than those owned by older entrepreneurs, Osunsan's studies do not support such views. While admitting the existence of differences in performance between younger and older entrepreneurs, he concludes that the differences *are not significant enough to explain variations in SMEs*. Indeed, studies by Bratnicki, M. et al. (2002) conclude that assuming any correlation between entrepreneurship and age, and hence innovativeness is only a myth. Majority of successful entrepreneurs in subject literature fall within the 18–40 age group (ILO, 2016; Osunsan, O.K. & Sumil, N.R. 2012; Kozubikova, L. et al., 2016; PARP, 2011).

Employee autonomy, as an expression of the entrepreneurial support for employee initiatives, was studied by Kozubikova, L. et al. (2016) in the Czech Republic. As much as 75% of entrepreneurs, younger than 45 years of age advocated a higher support for employee generated initiative compared to 66% for entrepreneurs over 45 years of age. Employee generated initiative seem to advocate for greater employee involvement in the idea generation stage of innovation creation proposed by Stauffer, D.A (2015).

Training

Twenty-first century economy is not only an evolving sphere of demand and supply, rather it is characteristically driven by dynamic developments in knowledge and technology sharing, further aggravated by advances in ICT. This invariably requires business owner-managers to be continually updated in knowledge acquisition and its subsequent sharing. SME performance does not depend solely on the entrepreneur's wealth of knowledge but a summation of the entire human capital. Hence the upgrading of employees' knowledge through training will enhance overall business performance. This is in line with the OECD's opinion that SMEs that provide employees with opportunities to develop problem-solving skills are more likely to succeed in developing new products or processes than others (OECD, 2015:20).

Informal training courses, through continued vocational training (CVT), can be provided in-house or externally. While in-house training is often in the form of on-the-job training external forms can be through participation at conferences, workshops, lectures or seminars. Other sources of informal training include benefitting from expert / or consultants' advice as well as in contacts with suppliers and customers. Studies conducted in Lombardy region and in Berlin, Italy and Germany respectively, indicated that less than half of participants in training courses in OECD member countries are SME employees (Salimi, M., 2015). According to Salimi, M. (2015), SME employees are more interested in participating in courses for new techniques and methods of operation. The most attractive skills to SME employees, the study found out were "technical and operational skills, problem solving skills, interpersonal skills, team working and managerial skills" in order of importance.

Gender

Despite the proliferate talk of gender-gap in business, the share of women in self-employment as business owner-managers as well as GDP contribution is growing, although sometimes considered to be low compared to their male counterparts. However, this may not fully represent the true picture as available data on the issue according to Salimi, M., (2016) remain inadequate and it may vary across countries. In Indonesia, for example, as much as 60% of SMEs that

constitute 99.9% of all businesses were managed by women (Ismail, V. Y., 2013). A major study in this area has been the *Global Entrepreneurship Monitor* (GEM) research program (Aldás-Manzano, J. et al., 2012) that spelt out specific differences between males and females in business. The female entrepreneurs' motivation to startup enterprises, according to *GEM*, was mainly for their personal satisfaction, self-employment, independence and autonomy, as well as personal challenge and vision of establishing a reputation in their local communities in contrast to males that see financial security and growing higher wealth as more motivating.

Women in business have also been characterized as being more involved in service and consumer-oriented services, and unwilling to take risks due to their less optimism (Ismail, V.Y., 2013). Although the above-mentioned factors may seem to point to the underperformance of female-led enterprises, this cannot be judged as conclusive. On the contrary, Williams, C. & Kadir, A. (2008) have concluded that there exists a positive correlation between female ownership and business performance in S. Africa, arguing that enterprises fully women-owned or jointly owned with men are more successful than those owned solely by men. In addition, the OECD (2017) report concludes that women-owned enterprises seem equally stable and resilient in the face of economic turbulences as those owned by men.

Another study conducted in Britain by Williams, C.C (2009) revealed that although both men and women engage in informal (non-registered) entrepreneurship, their motivation, however, vary. Women intent to go into business is more necessity-driven than men that are guided more by choice (opportunity-driven). This could be because of the women's foremost desire to ensure the economic security of their families, as earlier expressed by Ismail. Reports from Poland (PARP, 2011) indicate a vivid similarity to the global trend with almost 43% of women entrepreneurs setting up business due to lack of any other viable alternatives, and are usually not opportunity-driven. Women enterprise owners in Poland are, on average, 45 years of age and generally with higher education levels – 21% compared to about 19% for men.

The discussion in this chapter focused on enterprise management, which is understood as activities taken by owner-managers to counter and/or overcome the potential effects of uncertainties in business through the optimum utilization of available resources as well as efficiency in decision-making to achieve its set objectives. A major achievement of this chapter is that the owner-manager, male or female, plays a dominant role in SMEs management. Owner-manager's approaches to managerial issues are reactive and can be influenced by such factors as education, experience and knowledge, age, training as well as gender.

CHAPTER TWO

Innovation in SME: Its determinants

2.1. Innovation – theoretical approaches

2.1.1. Innovation: definitions

Innovation remains an issue of great concern for both theorists and practitioners, from enterprise, management and individual points of view. According to Freeman, Ch. (1982), it should be a matter of concern to all those keen on sustainable economic development as a way of improving life's quality, resource conservation as well as environmental improvement.

Innovation as a term is defined variedly in available subject literature. However, it is observable in subject literature that they oscillate between outcome-focused and process-focused, broadly-set and narrowly-set, theoretical as well as social psychological views concerning innovation. An overview, beginning from its earliest to contemporary definitions is presented in this section.

Schumpeter, J. (1934) acclaimed as a pioneer in innovative discourse, viewed innovation as the launching of new quality products, including new production techniques and technologies, the penetration of new markets or market segments as well as the implementation of novel organizational solutions (Sopińska, A. & Wachowiak, P., 2016). This rather elaborate and outcome-focused view of the innovation concept requires enterprise management including owner-managers to be versatile in skills acquisition such organizational, relationship, leading besides technical and cognitive skills. An even more elaborate definition was provided by Grossan, M.M. & Apaydin, M. (2010), namely, “production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems....”. Their definition can be regarded as a mix of both process-focused and outcome-focused views. Indeed, the definition takes innovation beyond production, processes and technological solutions – the traditional spheres of innovation – to include any value-added inputs however small they may be. This understanding tallies, in part, with Hansen and Wakonen (Grossan, M.M. & Apaydin, M., 2010) who summarized innovation as being any change effected

in enterprise activities, as it is argued that performance of any two separate activities always results in distinguishable outcomes.

M. E. Porter (Gunday, G. et al., 2008), on the other hand takes a technological viewpoint, defining innovation as a technological advancement and a business practice aimed at accomplishing enterprise activities, using up-to-date and better methods and processes. The definition sees technological progress as purpose oriented: accomplishing enterprise goals whose value depends on the superiority of methods, processes and practices put in motion. The reliance on quality processes, methods and practices thus signal the significant role of managerial attributes and practices in achieving enterprise developmental objectives. The caliber of managerial decisions and practices intended to achieve planned technological progress is undeniably related to the quality of competences owned by the enterprise.

Koźmiński, A. (2010) discusses innovation from the standpoint of competitiveness. According to him, innovation aims at competitiveness or has the capacity to secure competitive advantage in international markets, using current enterprise-owned resources to devise and implement innovative offers, *sought after by consumers in the new markets*. The argument seems to dismiss common opinions in subject literature that innovation is cost intensive as there is a need to invest in state-of-the-art technologies if anticipated objectives are to be meant. Innovation is achievable, according to Koźmiński, A. (2010) by putting current resources including technologies to alternative uses. This, in the author's opinion, should enhance significant understanding of innovation and innovative drivers, especially for micro and small-scaled enterprises that are often not buoyant in financial resources.

Gunday, G. et al. (2008) in viewing innovation from a management's perspective defines it as "the development and creation of new or improved products, business methods or services". In their view, innovation is not just a development process but also a creative activity that is goal-oriented. Any creative endeavor engaged by SMEs calls for the ingenuity of the owner-manager in his leadership and organizing roles.

A similar view was also expressed in "Innovation, Performance and Growth Intentions in SMEs" by Welsch et al., (2013), where innovation is defined as the enterprise's propensity to generate new valued offers, adopt new technological, organizational and market-oriented practices as well as to create new skills, including knowledge advancement and competencies. The adoption of new technologies and organizational practices purposely for the creation of new product and service offers reflects J. Schumpeter's "creative destruction" approach to innovation.

The American Small Business Administration (Welsch et al., 2013), on the other hand, views innovation as a procedural activity that begins with invention, whose development results in new products, services or process being introduced.

Invention is understood as the conceiving and developing of ideas (Dewangan, V. & Godse, M., 2014) – concepts, which can be processed into tangible products, services or technological solutions that reflect the enterprise's goals and aspirations. The procedural nature portrayed in the definition gives the impression that innovative activities can be dynamic, where knowledge is not only accumulated and diffused but applied in creative activities to create novel solutions. Innovation is thus seen from both the systems approach and the perspective of the diffusion theory. This viewpoint expressed by the American Small Business Administration can be summarized using the following equation:

$$\text{Innovation} = \text{invention} + \text{implementation}$$

Roberts' elaboration (Dewangan, V. & Godse, M., 2014) applies a similar equation, substituting exploitation for implementation. Invention is, according to them, defined as the conception and development of ideas into a workable effort. Exploitation (implementation), on the other hand, is defined as a commercialization process that should yield benefits to the enterprise or entrepreneur. It follows from this that any planned investments in innovation should, incorporate means of its commercialization (marketing, distribution, etc. – managerial activities) to reap its intended commercial benefits. Exploitation is also the employing of owned resources, including technological solutions in new ways to provide new offers that would better meet the needs of customers as a way of sustaining competitive advantage. The invention and commercialization aspects of innovation were also discussed by Dziallas, M. & Blind, K. (2019), who defined innovation as a concept that refers both to pre-market commercialization of ideas as well as those that have successfully undergone market exploitation. Although this demarcation does, to some extent, tally with innovation development phase, it can, in the author's opinion draw attention to the specific needs, for example the owner-manager competences, at the early and later stages of the innovation process.

B. Godin's (2008) definition is an example of an all-embracing approach to understanding the concept of innovation. The definition provides that innovation:

1. is a process whose outcome is something new through discovery, invention and imitation;
2. is a human creative capability involving his creativity, ingenuity and imagination;
3. is a change in spheres of life, for example, cultural, political, technological, social and organizational change, and
4. is the commercialization of new products.

Godin's B. (2008) approach is useful in understanding the scope/ context of innovation, which extends beyond its simple classification into product, service or technological process commonly recalled in some recent empirical studies. The definition draws much attention to the role of human capital, its

ingenuity and intent to seek alternative, more benefitting solutions, the causal effect of its intention (socio-cultural and organizational transformations) and the popularization of information/ knowledge introduced by the innovation. Godin's B. (2008) definition, in the author's opinion, can be adjudged as a holistic approach to understanding what innovation really is.

Much wider perspectives of understanding innovation are discernible in subject literature. One of such is that proposed by The Organization for Economic Cooperation and Development (OECD, 2005), which defines innovation as "the implementation of a new or significantly improved product or process, a new marketing approach, or a new organizational method in business practices, workplace or in its external relations". The definition categorizes implementation, novelty and/or improvement, thus introducing the idea of creativity, adoption and adaptation as three distinctive elements of innovation. Innovation can therefore be said to embody adoption – a process of generating, developing and implementing new ideas and behaviours, as well as adaptation – a process of capturing novel information, solutions and practices -- both of which are usually externally derived and lead to the engineering of new in-firm thinking (creativity). This approach clearly suggests that required competencies for successful innovation go beyond managerial competencies to include cognitive/ technical as well as social/ interpersonal skills of any individual engaged in innovation process. Innovation is a process whose outcome is an economically useful product and service or technological and/or organizational solution, aimed at improving the enterprise's performance.

A similar approach to defining innovation is also applied by the European Union, namely the application of new ideas, products (good or service) or methods in areas or circumstances where they are being put to use for the first time. The approach, thus emphasize novelty of such solutions for would be or intended consumers/ markets. Although the definition sees a product as a good or service, the author has opted, for the needs of this dissertation, to study innovation outputs using product understood as a good separate from service. This is supported by the fact that current Polish classification of business and innovativeness, PKD 2007, follows such pattern.

Environmental concerns have also been given attention in understanding the innovation concept in subject literature. One of such is eco-innovation which is defined by the OECD as "the production, assimilation and/or exploitation of newness in products and processes, services, management as well as business solutions", with the aim of significantly curtailing its negative impacts on our natural environment, especially in aspects of pollution and sustainable exploitation of resources. A similar view was echoed by Littles, A.D., reported in Stock, T. et al. (2017), in his sustainability driven innovation. A sustainability driven innovation according to him, aims to create novel products, services or processes or new market segments, while deliberately taking into consideration associated

social, environmental and sustainability factors. This understanding takes innovation in enterprises beyond the desire for mere economic/financial gains to a more holistic perspective of the concept of innovation for increased enterprise competitiveness, survival and growth. The prevalence of climate related anomalies being experienced worldwide in modern times calls for more decisive and pro-environmental considerations by enterprises.

However, the aforementioned definitions of innovation which rely mostly on the perspective of innovation outcomes, including the OECD's, have been criticized in literature. Garud, R. et al. (2013), for example, have advocated for more emphasis being placed on innovation process despite conceding that innovation is the invention, development and implementation of new ideas. They see innovation process as a sequence of actions triggered by emerging concepts, whose advancement and eventual adoption/or implementations are vital for the continuity of economic and enterprise's development. This sequential approach to understanding innovation should, in the author's opinion, enable entrepreneurs and owner-managers to tailor enterprise resources to the specific needs of given stages of the innovation process. Efficiency of use of an enterprise's limited resources, especially in SMEs cannot be underestimated.

The definitions mentioned in the preceding paragraphs, in contrast to others, indicate that innovation can be created in-firm, using internal resources, tangible and intangible and as opposed to being something that is adopted. The definitions also reflect the resource-based theory (RBV) of enterprise (to be elaborately discussed in chapter 3), which sees the quality of products and services – innovation outputs – as being dependent on the company's owned resources.

In contrast to previously mentioned researchers, Wolniak, R. (2010), takes the understanding of innovation to social psychological spheres. One of such views is the subjectivity approach, which sees innovation as being identifiable with a given sector of the economy and as a valued good to an enterprise. The second is the objective nature of innovation, which sees the market or marketability as the essence of innovation. This corroborates Ch. Freeman's opinion that innovation drives should be market oriented. The third perspective on innovation is its distinctiveness. Wolniak, R. (2010) concludes that innovations are characteristically strategic and dynamic. This can be further elaborated to mean that any innovation endeavour should be purpose-oriented and be responsive to a dynamically changing business environment in anticipation of consumers' evolving needs and preferences. The indisputability of this perspective derives from the fact that enterprise goals of business survival through enhanced profitability is achievable only if customers' loyalty is sustained by fulfilling their aspirations. The detailed literature study revealed other perspective views on innovation, some of those commonly discussed view-points are summarized in table 5.

The variety of approaches in defining innovation (table 5) can be attributed to several reasons, for example, the loci of origin or use of the innovation. The study of innovation from similar perspectives has resulted in the expansion of knowledge – a creative knowledge that can yield new ideas, hence resulting in innovation. Ahmed P. & Shephard, C.D. (2010) describe this as an “iterative cycle of knowledge and new knowledge creation”.

Table 5. A summary of varied aspects of innovation based on literature review

Varying viewpoints of understanding innovation according to			
Schumpeter, J.	Ahmad, P.K., & Shephard, C.	Godin, B.	Chandy, R.K. & Prabhu, J.C.
As: 1. A realization of customer desired solutions, 2. A realization of industry/ brand-specific new methods of production, 3. The exploitation of new sources of raw material supplies, 4. Market breakthroughs 5. A competition led organizational changes	As: 1. Something new (product, service, etc.) 2. A process (creating) 3. A tool for creating 4. The environment of doing something new 5. A new concept 6. A human ability to achieve new things 7. A process of change	As: 1. A process (imitation, invention, discovery), 2. Human ability (imagination, ingenuity, creativity) 3. Life changing (cultural, social, political, organizational, technological), 4. Popularization of something new	As an attribute: 1. Product/service or process innovation 2. Technological breakthrough 3. A business model 4. Architectural innovation 5. A component of innovation As an effect: 6. A drastic or revolutionary innovation

Source: Own adaptation based on: Godin, B. (2008). *Innovation: The History of a Category. Project on the Intellectual History of Innovation Working Paper, 1, 1–67*; Chandy, R.K. & Prabhu J.C. (2010). *Innovation typologies. Wiley international encyclopedia of marketing, 1–9*; Ahmed P., & Shepherd C.D. (2010). *Innovation Management: Context, Strategies, Systems and Processes, Harlow: Financial Times Prentice Hall.*; Schumpeter J.A. (1934). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interests and The Business Cycle, London: Oxford University Press*

It is equally observable in subject literature that attempts to understand the innovation concept have led some to resort to defining innovation-related concepts, which are in some circumstances used interchangeably and at other times complementarily. Table 6 is a summary of commonly available examples of interchangeability/ or complementarity of use of innovation-related concepts, their definitions and example of their sources.

Table 6. An illustration of innovation-related concepts, definitions and authors

Concept	Definitions	Source
Innovativeness	Involves persistency in the process of seeking, adopting and disseminating new ideas, products, practices, including organizational practices	Sankowska, A. (2012)
Flexible innovation	The existence of profuse post introduction configurations of innovation application with a speedy rate of conversion.	McKinley, W. et al. (2014)
Inflexible innovation	The possibility of post introduction configurations is limited and the speed of conversion is slow.	McKinley, W. et al. (2014)
Innovation activities	All measures (organizational, financial, scientific and commercial) taken by an enterprise with the aim of implementing innovations.	Oslo Manual, 2005
Innovation performance	A total of successes attained by an enterprise through its activities of innovation.	Salomo, S., et al. (2007) in Pullen, A. et al., (2009)
Innovation potential/ capability	As the enterprise capacity to successfully implement innovation (<i>continuously transform ideas and knowledge</i>) into new products, technology, organizational methods and marketing innovation.	Poznański, K. (1998); Yang C. et al., (2015)
Invention	The conception and development of ideas (intangibles) into tangible applicable solutions or products. Also seen from the aspect of creativity.	Dewangan, V., et al. (2014); Garud, R. et al. (2013)
Radical Innovation	Involves the introduction of (totally) new products, services and solutions, usually through change in technologies.	Mohsin, A. et al. (2017)
Open Innovation	A concept that recognizes the needs of organizations to look beyond their internal capabilities and resources to achieve innovation. As a deliberate collaboration between partnerships to fulfil customer expectations.	Chesbrough, H.W. (2003); Sopińska, A. & Mierzejewska, W. (2016); Friedman, M. et al. (2009).
Collaborative Innovation	A strategy of open innovation that enable stakeholders to partner to satisfy customer needs.	Friedman, M. et al. (2009).
Active Innovation	Types of innovation whose scope is narrow, restricted and incidental.	KPMG (2014)
Sustainable Innovation	Value creating processes of innovation with limited negative impacts on the environment	Stock, T. et al. (2017)

Source: Own elaboration based on: Sankowska, A. (2012). *Wpływ kluczowych kompetencji na innowacyjność przedsiębiorstwa*; McKinley, W. et al. (2014). *Organizational decline: Turnarounds and downward spirals*. Academy of Management Review. 39, 1; OECD (2005). *Oslo Manuals. Guidelines for Collecting and Interpreting Innovation Data*, 3rd edition // OECD, Paris; Pullen, A. et al. (2009). *Successful patterns of internal SME. Characteristics leading to high overall innovation performance*; Zastempowski, M. (2012). *Ocena składników potencjału innowacyjnego przedsiębiorstw*

w Polsce; Dewangan, V. & Godse, M. (2014). *Towards a holistic enterprise innovation performance measurement system*; Chesbrough H. W. (2003), *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Harvard Business School Press, Boston Mass, 21–197; Sopinska, A. & Mierzejewska, W. (2016). *Otwarte innowacje źródłem sukcesu przedsiębiorstwa. Zarządzanie i Finanse Journal of Management and Finance* Vol. 14, No. 2/1, 259–374; Mohsin, A. et al. (2017). *Assessing the role of entrepreneurial competencies on innovation performance /.../*; Friedman, M., & Angelus, H. (2009). *Best Practices in Collaborative Innovation. White paper. /Best_Practices_in_Collaborative_Innovation_1.pdf*; Garud, R. et al. (2013). *Perspectives on Innovation Processes. The Academy of Management Annals*, 2013 Vol. 7, No. 1, 773–817; (KPMG, 2014) *Dojrzałość innowacyjna przedsiębiorstw w Polsce*; M. Romanowska (2016). *Determinanty Innowacyjności Polskich Przedsiębiorstw. Przegląd Organizacji*, (2), 29–35. Stock, T. et al. (2017). *A model for the development of sustainable innovations for the early phase of the innovation process. Procedia Manufacturing*, 8, 215–222.

A good example of complimentary and interchangeable understanding of innovation and related concepts can be observed in The Macmillan English Dictionary for Advanced Learners (2002). It defines innovation first as a new idea, method, piece of equipment etc., and secondly as the invention or use of new ideas, methods, equipment etc. Invention in this definition can be understood as the ability to think of new and original ways (conceptual/creative thinking) of achieving something. Hence, knowledge acquired, its advancement through continuous learning and its purpose-oriented exploitation remain inseparable from innovation processes. The term “innovative”, on the other hand, is defined in the dictionary as something, product or service, that is new, and advanced as well as the act of inventing or using new ideas, methods etc. These definitions seem to confirm and/ or encourage the use of “invention” and “innovative” interchangeably.

As this dissertation borders on relationships between science and business practice, the author wishes to emphasize that the definitions of innovation and subsequent elaborations in the preceding paragraphs represent theoretical and scientific approaches to the subject matter. Although such quantifiable approaches are necessary for harmony in scientific studies, practitioners may not be bound to adhere to such definitions in their pursuit and understanding of innovation. Hence some organizations may rather focus on identifying indicators/ measures of innovation than concern themselves with defining the concept. Centrum Promocji Biznesu, for example, the organizers of the “Podkarpacka Nagroda Gospodarcza” competition that promotes excellence and innovation in SMEs from Podkarpacie Province, Poland looks at the fulfilment of minimum requirements by competing enterprises and if there is any noticeable advancement compared to existing solutions.

The literature reviews also revealed that innovation can be studied from theoretical perspective (OECD, 2005). Three theories, industrial organisational, diffusion and evolutionary are discussed.

The industrial organisational theories pioneers (e.g. Tirole, 1995) looked at why enterprises would engage in innovation. The theory asserted that an enterprise engagement in innovation and the approaches it employs is reflective of its current position, and the aims it wants to achieve or perhaps avoid. The organisational theory pays much attention to the business environment where the enterprise operates, as existing causal relationships can trigger decisions to engage in innovation. The theory suggests that enterprises engage in innovation hoping to either retain their current market position, improve their strategic position relative to its competitors or reposition itself in new market segments for a better competitive advantage. In implementing innovation from the perspective of this theory, it is important to note that its performance can be influenced by the company's organisational structure and learning. The view-point thus requires decision-makers, owner-managers, to make strategic decisions, often influenced by the prevailing business climate.

If organisations are to benefit from available knowledge, then management (owner-managers in case of SMEs) ought to cultivate business strategic practice to enhance knowledge acquisition and sharing. The cultivation of enhancing business environments for knowledge acquisition and sharing requires that owner-managers of small enterprise possess appropriate strategic, leadership and interpersonal competences. Innovation investments and decisions despite being fraught with immeasurable uncertainties, especially in resource handicapped SMEs, remain a sure way for enterprises to engage their competitors in a technology and knowledge driven global economy.

The diffusion theories, in contrast to organizational theory look at the in-house decision-making process regarding the adoption of new knowledge and/or technologies. Since the mere acquisition of new technology, equipment or knowledge, does not necessarily lead to innovative outcomes, products or services or enhanced competitiveness, protagonists of diffusion theories (e.g. Hall, 2005) stress the role of knowledge dissemination. A proper dissemination of knowledge enhances its understanding and adoption by employees, adaptation to enterprise situations and aspiration thus leading to the creation of new knowledge. Effective in-firm dissemination of knowledge would require creation and organization of efficient communication channels. This, in no doubt, calls for quality leadership, organising and interpersonal skills of owner-managers in small and medium-scaled enterprises characterized by lean human resources.

The last but not the least of the three, evolutionary approaches, according to the propagators (e.g. Nelson & Winter, 1982), is a process whereby knowledge and technology can be developed along observable pathways. They see ideas, skills, knowledge, information and market signals as qualities that can be shared, transferred and disseminated amongst all concerned players. The approach emphasizes the need for interactions/ networks between in-company departments or units or between the company and external institutions (public R&D centres,

cluster members, other competitors, etc.) in the process of knowledge creation (via adoption and adaptation), diffusion and application that triggers subsequent actions, culminating in innovation to satisfy customers' growing needs. The possession of interpersonal and networking skills by SME owner-manager's emphasized in these theories concords with Mintzberg's roles approach to management (de Oliveira, J. et al., 2015).

In summarising the discussion, innovation, despite being widely defined in literature, can be said to refer to the idea of well-planned activities, beginning with the creation of enabling environments for innovative ideas to thrive in-house or, acquired from external sources through adoption and adaptation, its dissemination and application to achieve its objectives, which include sustainability and growth. It should be noted, though, that despite the utility of innovation theories for understanding the business climate, they are not sufficient tools to achieve competitive advantage without decision-makers (owner-managers), who are equipped with appropriate skills and competences.

Hence the author has, in attempt to accomplish the objective of this dissertation, despite the variety of definitions, adopted the following operational definition. "Innovation is the *conceptualisation and implementation, through adoption and adaptation of new knowledge, whose output is a new or significantly improved quantifiable, value-added product, service or process, a new marketing or organizational solution, relying on the enterprise's internal and external capabilities*, to accomplish the enterprise's strategic objectives".

The adoption of the above definition is based on the premise that in an increasingly globalized market with overwhelming access to knowledge and unlimited market accessibility, enterprises can no more rely solely on their internal resources to effectively engage its competitors. An enterprise's readiness to exploit externally available resources and solutions through the owner-manager's openness to knowledge inflow therefore seems inevitable. The contrary would mean subjecting oneself to a state of inertia, waiting to be eliminated by the competition.

2.1.2. Innovation Development in SMEs

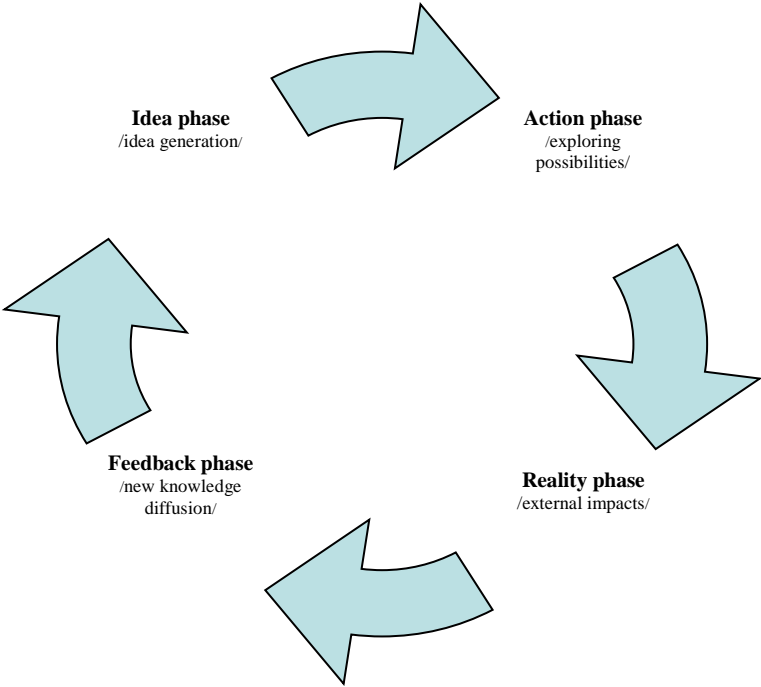
With a hindsight of the non-deniability of the significant roles played by SMEs in local, regional and national economies, understudying their development patterns is undoubtedly deserved. The definitions of innovation presented in 2.1.1 show that innovation cannot be discussed solely from the perspective of an output. A paradigm shift in the way one views innovation as procedural (Sulistyo, H. et al., 2016; Boer, H. et al., 2001) is observable in the literature review. Since innovation process spans over a period of time, comprising of varied activities, it is concluded that it can be separated into stages or phases. For example, innovation stages have been agued to be sequential (Lendel, V.

et al., 2015; Stock, T. et al., 2017), beginning with idea generation through selection and development, finally ending in product launch and/or knowledge diffusion.

The initial phase of innovation, idea generation, has received serious attention in subject literature. The need to focus on this stage, according to Stock, T. et al., (2017) is the shortening of innovations lifespan, perhaps due to enterprises' desire to remain ahead of their competitors. While several authors, including Schumpeter, have asserted that innovation itself is a creative process, others have decided to reserve this for the very initial phase of innovation creation. For example, Stock, T., et al., (2017) have in discussing Cooper's idea generation stage, appropriately referred to it as the fuzzy front-end of innovation (FFE), which is described as a stage of creative observation and idea initiation. They have, based on their understudy of the FFE, developed a model depicting the early phase of innovation process, the FFE process.

Another example of the need to focus on the initial, creative phase of innovation is the Valuable Novelty (VN) Theory by Stauffer, D.A. (2015). The Valuable Novelty model, in similarity to the FFE model consists of four phases, namely (Figure 2):

Figure 2. An illustration of phases of innovation creation in SME



Source: Own elaboration, based on Stauffer, D. A. (2015). Valuable novelty: a proposed general theory of innovation and innovativeness. International Journal of Innovation Science.

- a) Idea Phase. The awareness of the need to meet certain market/customer expectations necessitates the desire to seek knowledge and resources to reconcile the observed gap since current solutions are not capable of taking the enterprise to the new level. This starts with brainstorming for ideas, new possibilities in relation to existing company-owned resources or solutions through their evaluation, terminating in selecting one of them. The robustness of such ideas would of course depend on the availability of in-house knowledge and skills as well as the degree of openness to new ideas and having the appropriate environment that encourages the flourishing of innovation ideas. The quality of idea generation can be adjudged relative to the enterprise or owner-manager's ability to identify un-met customer/market needs.
- b) Action Phase. This is the phase where the selected idea is put to trial or explored in order to ascertain if it is feasible within available enterprise resources and if it meets our intended objectives of enhanced innovativeness. A phase involving taking risks as investing in something whose outcome can be a failure. The risk is even higher considering that this might call for enormous resource, financial and material, engagement. For SMEs, especially micro enterprises that are often resource handicapped this phase may seem unsurmountable.
- c) Reality Phase. While the two previous phases are usually in-house (incubated) the reality phase brings our novel product to the market/customers for the real test to determine if one has a successful innovative product, service, etc., or not. The uncertainties of the situation call for strategic thinking/planning, coping with stress, as well as perseverance, amongst others by the owner-manager. The ability of the owner-manager to identify problems or defects of the innovation will enhance learning processes if the outcomes of phase three are well interpreted and acted upon adequately. Leadership qualities, communicative and motivating skills, including the owner-manager's adaptability/flexibility will definitely be crucial to the effective management of this phase of innovation creation.
- d) Feedback Phase. This phase in Stauffer's innovation creation cycle is crucial for the enterprise's innovative development as the appropriate analysis and interpretations of lessons learnt in its contact with the external environment when combined with in-house capabilities can translate to lasting innovation growth. The attainment of this is, however, dependent on the owner-manager's possession of relevant competences/skills as analytical thinking, decision-making, team-working skills as well as learning, which involves accepting responsibility for mistakes made and learning from them. Stauffer's approach in his valuable innovation theory, in the author's opinion, fully captures the OECD's definition of how innovation should be understood.

Some commonly mentioned early phase models of innovation process are summarized in table 7.

Table 7. Models of early (creative) phase in innovation process

Valuable Novelty (Stauffer, D.A., 2015)	FFE process (Stock, T., et al., 2017)	Lendel, V., et al., 2015
Idea Phase; generating multiple ideas.	Problem detection: describing the problem.	Idea generation
Action Phase: testing and exploring	Problem analysis: identify causes of problem	Solution selection
Reality Phase: market testing for success or failure	Problem solution: discuss alternative creative solutions	Solution development
Feedback phase: learning, knowledge, diffusion	Solution selection: implementing solution ideas	Launch and knowledge diffusion

Source: Own elaboration based on: Stauffer, D.A. (2015). Valuable novelty: a proposed general theory of innovation and innovativeness. International Journal of Innovation Science.; Stock, T., Obenaus, M., Slaymaker, A., & Seliger, G. (2017). A model for the development of sustainable innovations for the early phase of the innovation process. Procedia Manufacturing, 8, 215–222.; Lendel, V., Hittmar, S., & Siantova, E. (2015). Identification of the main levels in the management of innovation processes. Procedia Economics and Finance, 26, 1108–1112.

While the early phase of innovation creation can therefore be challenging for new entrants in the arena of innovation for lack of prior experience or for micro and small SMEs with their financial and non-financial constraints, the entire process ought to be regarded as a learning and knowledge/capability acquisition process. Lessons learnt, knowledge acquired can be analysed, shared/diffused in-house for enhanced competence of enterprise staff. Such an adventure would exert enormous demands on the owner-managers, especially in areas of openness to new ideas, teamwork, risk-taking and knowledge. The inter-play of the enterprise's both in-house capabilities and experience gained from interactions with its external environment is elaborately discussed in literature by several authors, including Sudolska, A. & Zastempowski, M (2016), Whittaker, et al. (2016), Bal-Woźniak, T. (2016), Romanowska, M. (2016) and Sankowska, A. (2012), etc.

2.1.3. Innovation Typologies – theoretical concepts

The existence of countless approaches to defining innovation as a concept has resulted in attempts to understand what enterprise innovation is by taking a critical typological view in subject literature.

Innovation and its related concepts have evolved over time, which is reflected in the multiplicity of related descriptions of similar ideas. This has necessitated the need to restore some order by making use of classification methodologies. Many of such classifications, relying on varied criteria, are

available in management literature. However, the systematic literature review has revealed that some of the commonly mentioned classifications, worthy of mention include:

- a) the multi-type classification
- b) the degree of power of innovation classification
- c) the multilayer classification
- d) the dichotomical classification
- e) the dually-dichotomical classification, and
- f) the innovation stages linked classification.

Since the aim of this dissertation is not about identifying and discussing innovation types, but management literature consists of lots of classifications, which cannot be fully covered due to limitation of space, three classifications that reflect the topic of the dissertation are presented in the discussion. The first, according to Kotsemir, M. et al., (2013), depicts how classifications have evolved reflecting different approaches, see table 8.

Table 8. A summary of innovation classification approaches according to Kotsemir, M., Abroskin, A., & Meissner, D. (2013)

Criteria	Types of innovations
Dichotomical approach	User-driven/supply-side innovation; Open/closed innovation; Product/process innovation; True/adoption innovation; Instrumental/ultimate innovation; Incremental /radical innovation; Continuous /discontinuous innovation; Original/reformulated innovation; Innovation/renovations.
Degree of Innovativeness approach	Weak innovation: (incremental/routine/minor/ regular/non-drastic/basic); Medium strength innovation: (architectural /niche /modular /fusion /evolutionary / sustaining); Strong innovation: (radical/ major /breakthrough /distruptive /revolutionary /paradigm /fundamental /discrete)
New approach	Frugal/Red ocean/Blue ocean/Experience/Value-migration/Business model/organic innovations
Classical Approach	Product/Process/Service/Marketing/Organizational/Design/Supply /Chain innovations.

Source: Own elaboration based on Kotsemir, M., Abroskin, A., & Meissner, D. (2013). Innovation concepts and typology–an evolutionary discussion, Higher School of Economics Research Paper No. WP BRP 05/STI/2013, 1-49

Table 8 shows classifications ranging from the classical, academic types of innovation to the new approach with rather unfamiliar terminologies. The dichotomical approach relies on contrasting vocabulary, for example, innovation vs renovation, continuous vs discontinuous and open vs close innovations to differentiate aspects of innovation. Novelty is a term often associated with innovation, although the extent or degree of novelty is not often discussed in

management literature. However, two manifestations (technological and market) of novelty with three levels of intensity of the novelty have been presented in recent literature (Kotsemir, M. et al., 2013).

The next example, table 9, is a summary of innovation classification showing types of innovation identified by their levels of technological advancement as well as observable impacts of the innovation.

Table 9. Innovation classification based on level of technological novelty and impacts

Innovation type	Level of technological advancement	Impacts of the innovation
Reformulation	Improved technology	Optimizing a balance in costs, quality and availability of current products' offer
Replacement	New technology	New technology driven use of new inputs, formulations for existing brands
Remerchandising	Unchanged technology	Increased market offer of current products
Improved product	Improved technology	A drive towards improved customer satisfaction through enhanced user-value
Product line extension	New technology	Brand stretching with new technology within current market segment
New use	Unchanged technology	Penetrating new market segments with current products
Market extension	Improved technology	Technology enhanced product modification to attract new customers
Diversification	New technology	Reaching new customers by offering user-attractive technological know-how.

Source: Own elaborations based on Kotsemir, M., Abroskin, A., & Meissner, D. (2013). Innovation concepts and typology—an evolutionary discussion, Higher School of Economics Research Paper No. WP BRP 05/STI/2013, 1-49.

The innovation classification, its related impacts on the company activities and offers (table 9) resonates with the Oslo Manual's 3rd edition definition of innovation, that has become a common referral in management studies.

The multiplicity of innovation classifications notwithstanding, one must not lose sight of the essence of innovative activities that business enterprises engage in. The innovation classification by Schumpeter, J. (1934) that is most commonly referred to in literature validates the argument.

The classification enumerates five categories (OECD, 2005:29) namely,

- The introduction of new/ relatively new products,
- The introduction of new methods of production (new technological applications),
- The creation of new markets or market segments,
- The development of new sources of raw materials and inputs supply,
- The creation of new market organizational structures in an industry or sector.

This discussion infers that SMEs' drive for innovation is a well thought out decision to sustain, improve and/or develop their competitive advantage in order to survive in an economically competitive and technologically driven knowledge-based economy. An aim of this doctoral study is to identify competences possessed by owner-managers of innovative SMEs that have contributed to the creation of award-winning innovative products, and services, considered as indispensable determinants of sustenance for small and medium enterprises.

2.1.4. Distinctive features of innovation SMEs

As has been pointed out in the previous section a lot of space has been devoted to innovation and innovation processes in literature as prerequisites of economic development in enterprises. Instances in literature, where innovation has been used interchangeably with innovativeness, are often defined as a tendency and ability of an enterprise to implement innovation processes. This has, in some way beclouded the specific nature of such activities in SMEs, especially when compared with other participants in the business sector. Innovativeness despite being an attribute of any enterprise (Kraśnicka, T. & Ingram, T. 2013), all organizations interested therein need to be able to capture an opportunity and be willing to take advantage of its ability to create something new or introduce major changes if it intends to satisfy the yearnings of its customers. This corroborates Saunila, M. & J. Ukko's (2014) of being able to turn available opportunities (technical and knowledge) into new ideas, that can be subsequently transformed into useful outcomes of innovation, and in consequence market success (Rammer, C. et al., 2009). Both conclusions seem to validate Sok, P. et al. (2013) perspective of innovation capability as being a set of interrelated processes that SMEs engage in to enable them execute new products and services.

The above discussion prompts one to conclude that innovative engagements by enterprises (SMEs) can be distinguished from other activities they are involved in. Some distinctive features of innovative activities, commonly mentioned in subject literature include (Oslo Manual, 2005):

- The outcomes of innovative activities are plagued by high uncertainty due to the time lapse between the point of conception and implementation. Many things could have taken place in this space of time, especially in highly dynamic business sectors.
- Huge investment outlays. Technological and new product innovations often call for huge capital outlay for the acquisition of fixed and intangible (knowledge) assets whose rates of returns on investments (ROI) take a longer period. For SMEs that are often capital strapped, this can be an insurmountable barrier, thus forcing them to resort to incremental rather than radical innovation.

- Knowledge spill-overs. Once knowledge had been introduced, it is bound to be copied, adapted and/or modified for various spill-over activities, like development of new solutions and applications. This could serve as opportunities to participate in innovation by micro SMEs engaged in adaptive innovation drives.
- Utilisation of knowledge. An enterprise's ability to combine new knowledge with existing in-house knowledge requires a novelty of approaches or solutions, which according to Zastempowski, M. (2012) can result in disorganisation, both in structural and managerial terms.
- Performance improvement. A key objective of engaging in innovations by various firms is to achieve competitive advantage thanks to enhanced innovation capability.
- Development of new knowledge culture. The experience gained from developing new products or services propels employees and owner-managers to venture to newer areas of knowledge creation and use. Such spiral involvement in new knowledge creation can become culturally imbedded in an enterprise.

The extent to which an enterprise can take advantage of its innovative capacity, which hinges on its ability to meet customers' ever evolving needs and demands and hence its innovation performance, does vary between companies (Mason, G. et al. 2009). A firm's ability to innovate in the parameters outlined above and attain its objective of meeting customer's demand does not result solely from the mere possession of skills-based capabilities, but also on the acquisition of superior learning (knowledge) capability. A firm's learning capability is the set of related skills possessed to enhance the diagnosis of employee training needs, such as skills evaluation (Sok, P. et al. 2013), analysis of evolving market situations and expectations and the facilitation of a swift response ahead of its competitors. In aiming to capture the accruing benefits of venturing into innovation, small and medium-sized enterprises are compelled to enhance their employees' capacity to absorb knowledge in-house or through cooperation with external bodies (knowledge capturing), for example, larger firms, R&D centers etc.

SMEs, as co-players of the business sector, are characterized by specific features, which in certain circumstances can be utilized to their advantage but can also become drawbacks in their business endeavours. These specific features of SMEs do have varying impacts on the intensity and type of innovation activities undertaken by such enterprises irrespective of other factors. SMEs are characterized by scarcity of resources, including human resources (management and personnel), financial capital, time, etc. (Singh, R.K. et al., 2008). Despite being handicapped by limited human resources, in terms of quantity and quality, SMEs are considered very successful in innovation implementation (Sok, P. et al., 2013), a consequence of their innate drive to meet their customers' evolving needs and demands, which is considered a pre-requisite of their survival.

2.2. Significance of Innovation in SMEs

SMEs business environment is both hostile and competitive, hence survival depends on their ability to satisfy the increasing demands of their customers. Since markets, even local ones have become easily penetrable thanks to development in information and communication technologies, SMEs and their owner-managers would have to do a lot more to stay competitive and/or excel in the competitive advantage. For Polish enterprises, including SMEs, the introduction of technological advances and innovation should be seen as obligatory and not simply opportunities (Chabiera, S., 2013). This is also echoed by Prahalad, C.K. & Hamel, G. (1990) (Chrabiera, S., 2013), who noted that competitive advantage is attainable on account of innovation, which consists of creating new concepts to meet customer needs, staying ahead of current levels of technology and products by at least 5 years.

It can be adjudged from the above that innovation is a causal, change-provoking agent in small and medium-scaled enterprises. First, innovation triggers growth, quantitative and qualitative to at least sustain continual improvements in the product and service offers. Growth entails undertaking investments in resources development, including technology to be able to offer technologically-advanced solutions to customers. Resource development for innovation also involves developing the enterprise's human capital through training for skills and competency acquisition and/or improvements. It is claimed in literature that firms which engage in innovative endeavours are characterized by higher efficiency (Mason, G., et al., 2009) as well as higher levels of technological and human capital development (Smith, M. et al., 2008).

Second, innovation is the outcome of the successful implementation of an enterprise's creative ideas, generated internally or externally via adoption or adaptation processes. In order for novelty ideas to flourish conducive work environment must be enhanced and sustained. A conducive work environment, according to Center for Creative Leadership (2017) means applying appropriate management practices, motivation and availability of resources.

Third, the enterprise organizational structure is also influenced by innovation drives. Organizational culture is a summation of relations, such as beliefs and values of owner-managers and employees and how they influence the enterprise's activities, including decision-making to achieve set objectives. Since innovation is rather a process involving continued advancements, the organizational structure has to be continuously fine-tuned. The conclusion by the Center for Creative Leadership that organizational culture is a key factor in innovation management can as well be interpreted to mean that continual improvements in SMEs organizational culture is sought after if innovation for enhanced competitiveness is to be sustained.

The beliefs and values held by the owner-manager of SME affect his risk-taking propensity and openness to new knowledge through exploitation and exploration. Studies conducted by Brion, S. et al., (2010) revealed that enterprises

that are best-performing show a high inclination to risk-taking. Another valuable conclusion from the literature study is that since innovation is never a short-time endeavour, SME owner-managers need to develop strategic approaches to planning and in so doing acquire and develop long-term managerial practices.

In a knowledge-based economy, being innovative requires the enterprise, its employees and the entrepreneur (owner) to be knowledgeable of relevant information about current and future market trends. Therefore, the ability of owner-managers of SMEs to capture knowledge, in-house or through external networks, is crucial for engaging in meaningful innovation. It is commonly agreed in literature that the ability of an organization to acquire and accumulate knowledge impacts its innovative capability (Fores, B. & Camison, C., 2015). Hence, many enterprises, would see the need to invest in knowledge development as a direct result of their decision to engage in innovation.

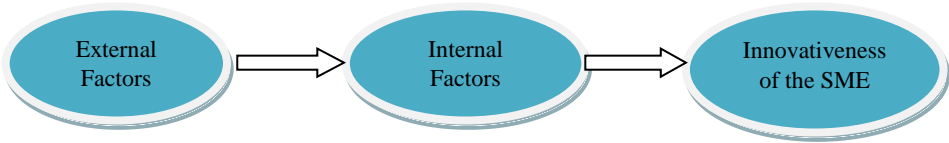
In concluding, however, it should be noted that despite the postulation by several authors, including Gunday, G. et al. (2008); Zennouche, M. et al. (2014); Vieites, A.G. & Calvo, J.L. (2010) that organizations can create and sustain competitive advantage by engaging in innovation as a business strategic objective, it is by no means a one directional relationship (Demirel, P. & Mazzucato, M., 2012). It is indeed a two-way channeled relationship with innovation enhancing organizational growth and vice-versa.

2.2.1. Internal and external factors affecting innovation in SMEs

Considerations in earlier sections of the current chapter, including the operationalized definition can be summarized thus. Firstly, although the goal of innovation is to satisfy customers increasing demands for quality offers the approaches adopted vary between enterprises and over time. Secondly, that innovation is a process that involves exploiting both knowledge and resources. Variety of approaches to innovation and its understanding is discussed in literature (Zastempowski, M., 2012; KPMG, 2014; Sopińska, A. & Wachowiak, P., 2016; Romanowska, M., 2016). SMEs wishing to engage in innovation practices have to decide which path to follow. Whichever approach an enterprise adopts, the degree of success or failure of the innovative endeavour will depend on several factors that are either firm-based or in-bound (external). These factors are discussed in the subsequent sections.

Pullen, A., et al. (2009) postulate that an SME's aspiration to achieve higher innovative performance is a means to survival, which can be hindered by SME-specific problems. A solution, according to the authors, is to study the enterprise's internal features to fully grasp existing relationships between organizational characteristics and enterprise performance. Romanowska, M., (2016) on the other hand, concludes that internal factors do not exist independently as they are influenced by the firm's external factors, creating a relationship that can be expressed as shown in the figure 3.

Figure 3. Dependency of factors (internal/external) influencing SME innovativeness



Source: Own illustration based on Romanowska, M. (2016)

Although the relationship between internal and external factors and their impacts on innovation may not be linear, the inter-reactivity of complex links existing between stakeholders or entities in a given market or regional set-up necessitates the taking of decisions in-house. Such in-house decisions could be responses to observed trends or may themselves spur others to react appropriately, causing a continuous spin of business decisions.

External determinants of innovation in SMEs

The illustration presented in the previous section does indicate the significance of indirect roles played by external factors in shaping innovativeness in small and medium enterprises. As has been noted in earlier sections of the dissertation, small and medium enterprises' desire to survive in an aggressively competitive environment by adapting to emerging changes drives the enterprise towards continued innovative activities, irrespective of size-related constraints.

The definition provided by Sankowska, A., (2012), besides defining innovativeness as being a creative and organizational capability, emphasizes the absorption and application of externally sourced knowledge. This, according to the author, is an indisputable indication of the enterprise's willingness to not only develop and manage networks but also to sustain them as part of its business strategy. This is validated in studies conducted in Poland for example (Romanowska, M., 2016; Zastempowski, M., 2012), regarding factors influencing enterprise innovativeness, which identified three categories of external environmental factors, namely:

- a) direct impacting factors (tax exemptions, preferential lending and financial support for innovative firms),
- b) indirect impacting factors (education and science, R&D facilities, tax regimes, institutional lending policies, efficiency of state institutions, efficiency of governmental and local governmental institutions, freedom of business activities), as well as
- c) sector-related factors (intensification of sectoral competition, the impact of technological changes as well as the penetration of international businesses).

The appearance of a new entrant/competitor into a market with better quality products or service which is perhaps offered cheaply erodes the market share of existing companies. The loss of market-share and therefore accruing

incomes triggers attempts to recapture lost customer base by either adapting to new business challenges or by introducing completely new innovative solutions that generate new customer traffic.

Błaszczuk, D. (2013), however, identifies two categories of innovation and favourable external factors influencing enterprise activities. These include the enterprise's general (state policy regarding institutional, organizational and information solutions, infrastructure, local government, education and training systems as well as prevailing market conditions) and operational (its network of suppliers, customers and other stakeholders, scientific and technological institutions as well as innovation supporting organizations and institutions) business environment. Despite the differing approach, both classifications are complementary, which shifts emphasis to their contributory roles in fostering enterprise innovativeness through knowledge acquisition.

While direct factors such as external sources of knowledge, for example EU and government subsidies for innovation projects or the availability of secured preferential lending facilities, aim to improve companies' in-house capabilities to create innovation, the indirect factors, for example a conducive business environment, quality education and research-based teaching etc., create sustainable external enabling environments for innovative activities. Acquired knowledge in the form of intellectual capital (internal resource) is capable of being transformed into useful assets if accompanied by enabling policies issued by local institutions. Sectoral factors, for example the appearance of new technologies or competitors, would necessitate taking active steps by firms concerned with innovative drives to at least catch up with the competition for the sake of their survival and sustained competitiveness. Sectoral factors compel enterprises to engage in competitive innovativeness, thus setting the framework for systematic investments, for example in technology, new resources and knowledge, in innovation and more. Additionally, taking advantage of available sectoral opportunities/solutions should enable participating companies to acquire competitive advantage through synergy effects, thus benefit from all types of innovations (Bal-Woźniak, T. 2016), irrespective of their size and strength. This, arguably translates into or encourages a continuous learning approach, thus facilitating high investment maturity of enterprises (Romanowska, M. 2016; KPMG 2014). Studies conducted by Sopińska, A. & Wachowiak, P. (2016) amongst Polish SMEs clearly show that competitors, customers and consulting firms were three greatest external sources of innovative drives. The influence of suppliers and attendance at conferences is also worthy of note.

Studies conducted by Majewska-Bator, M. & Bator, P. (2011) concerning external sources of knowledge for enterprise development in SMEs revealed that majority of respondents indicated participating in trainings, co-operating with customers and suppliers, strategic investors, employment of new employees as well as the use of brand-related media publications were reliable sources of

knowledge. The role of knowledge as the most strategic of organizational resources (Grant's Knowledge-based View- KBV) in enterprise competitive development through its innovation activities is elaborately discussed in literature. Its acquisition through adoption and absorption from external sources to augment/improve firm-based knowledge enhances both incremental and radical innovativeness of the enterprise (Fores, B. et al., 2015). This seems to be in line with the role of incremental and maturity innovativeness mentioned in reports by KPMG (2014), Romanowska, M. (2016), and Zastempowski, M. (2012). Similarly, studies conducted by Rogut, A. & Kubiak, K. (2008) concluded that the greatest external contributors to SME's innovative capacity are its customers as well as other entities within the same brand sector. This seems to corroborate the synergy effects enunciated by Bal-Woźniak, T. (2016).

The Oslo Manual (OECD, 2005), on the other hand, categorizes economic factors such as high costs and/or lack of demand as external determinants that may not only retard but also deter innovative activities. Table 10 presents a summary of some empirical studies to identify factors, both internal and external that affect enterprises' innovative endeavours.

Table 10. Internal and external factors influencing innovativeness, based on empirical studies

Internal factors	External factors	Autor(s)
<i>1</i>	<i>2</i>	<i>3</i>
1. General firm characteristics (firm size, age, ownership status and foreign capital); 2. Firm structure (intellectual capital, organizational culture); 3. Firm strategies (collaborations, innovation outlay, business strategies, monitoring strategies);	1. Sectoral Conditions and Relations (market dynamism and intensity, public incentives, non-firm based barriers to innovation)	Gunday, G. et al., 2008.
1. Human resources based factors: (creativity, entrepreneurship, leadership style, teamwork – organizational culture), 2. Strategic factors: (personnel quality, motivational system, firm's competitiveness, type of business strategies), 3. Quality and nature of resources as well as structural links and networks.	1. Factors directly impacting: (tax reliefs, preferential loans, financing company's innovative projects); 2. Factors indirectly impacting: (education, science, research and implementation facilities, taxation regimes, laws, credit facilities, efficiency of the central government and local administrations, as well as business favourable climate); 3. Sectoral factors: (intensity of competition within sectors, significance of technological change, internationalization of the sector).	Romanowska, M. 2016

1	2	3
Enterprise-based resources and skills	<p>Regional: The labour market, technical knowledge and scientific information resources, readiness of institutions financing business activities.</p> <p>Including:</p> <ol style="list-style-type: none"> 1. Sectoral environment: Suppliers and cooperating partners; customers and end-users; competitors. 2. Institutional environment: Government, Science, Institutions supporting business. 	<p>Poznańska, A. [in:] Zastempowski, M. 2016.</p>
<ol style="list-style-type: none"> 1. Business Strategy, Dominance (power / authority of owner), 2. Formalization: (system of rules and procedures), 3. Marketing-R&D integration (existence of cooperation/ communication), 4. Entrepreneurial climate (attitude of individuals and the owner- degree of trust, leadership credibility and resistance to change), 5. Business culture (shared beliefs and values held by members), 6. Team structure (structure of cross-functional teams) 	Not covered in the study	<p>Pullen, A. et al., 2009</p>

Source: Own elaboration based on Gunday, G., Ulusoy, G., Kilic, K. & Alpan, L. (2008). *Modelling Innovation: Determinants of Innovativeness and the Impact of Innovation on Firm Performance* /in/ *Management of Innovation and Technology*, 2008. ICMIT 2008. 4th IEEE International Conference on (766–771). IEEE; Romanowska, M. (2016). *Determinanty Innowacyjności Polskich Przedsiębiorstw. Przegląd Organizacji*, (2), 29–35; Zastempowski, M. (2012). *Ocena Składników Potencjału Innowacyjnego Przedsiębiorstw w Polsce*, 147–219 [w:] *Współpraca małych i średnich przedsiębiorstw w regionie: Budowanie konkurencyjności firm i regionu*, pod redakcją Adamik, A. Warszawa, Delfin 2012; Pullen, A., Weerd-Nederhof, D. Groen, A., Song, M & Fisscher, O. (2009). *Successful patterns of internal SME characteristics leading to high overall innovation performance. Creativity and Innovation Management*, 18(3), 209-223.

Internal determinants of innovation in SMEs

Internal or firm-based factors, contrary to their external counterparts, do exercise direct impacts on companies' innovativeness as they can be deployed

almost without hindrance to improve the success rate of a firm's innovative activities. Their impacts can, however, be moderated by externally interacting factors in their environs. Existing literature abounds in innovation capability support factors, conceding that a key source of internal factors determining innovativeness in SMEs is the entrepreneur or owner-manager, their personality, aspirations and competencies. The prominent role of the entrepreneur as a crucial factor determining SMEs' innovativeness, especially in micro-SMEs, can be attributed to their desire to retain the family influence and character of such businesses. The empirical results presented in table 10 show that enterprise's internal factors influencing their innovative drives can be grouped in four areas, namely: a) Human resources related factors and their relationships

The key player here remains, in the case of SMEs, the owner-manager and his personal competencies such as his risk-taking abilities, creativity, team-working skills, as well as his ability to garner employees' support around his ideas and projects, etc. Dechamps according to Romanowska, M., (2016) postulates that the existence of innovation prone leaders, who consistently stimulate innovativeness by developing pro-innovation competencies stands out as a crucial factor for SME innovativeness. Such leaders are usually able to inculcate team attitudes and behaviours as well as encourage an atmosphere of cooperation that stimulates knowledge acquisition and sharing. The tenacity of this argument lies in the ability of such leaders to infuse new ideas and inventions into their team members and carry them along even when the bigger picture is yet hazy. Similarly, Sopińska, A. & Wachowiak's, P. (2016) conclusion that the management, owner-manager in SMEs, that lacks appropriate competences is one of the greatest barriers to an SMEs innovative drive supports the argument. A firm's human resources, human capital, which includes its employees is only regarded crucial and innovation facilitating if it is capable of transforming intangible resources into tangible innovative products or services that satisfy the needs of its customers and in so doing enhances the firm's competitive advantage. Indeed, the Organizational Resource-based Theory – RBT talks of the enterprise ability to exploit resources engaged in the accomplishment of tasks for the achievement of its expected market and economic objectives (Krawczyk-Sołtys, A. 2017). Such an ability to exploit resources by developing, sustaining and exploiting social networks depends on the owner-managers' ability to engage in flourishing networks with others (Lans, T. et al., 2016). A study on Poland's SMEs conducted by Rogut, A. & Kubiak, K. (2008) amplified this, with majority of respondents pointing to the undeniable roles of entrepreneurs, the management team and employees in fostering innovation. Sudolska, A. & Zastempowski, M. (2016) had also postulated in their paper that an enterprise's ability to forge innovative enhancing ties with its external environment is a reflection of the quality of prevailing in-house relations, such as the interpersonal relations as well as the relationship between superiors (owner-manager) and subordinates.

b) Firm's strategic factors

These are usually linked with its competitive strength and resource availability. A firm's pursuit of competitive advantage by offering innovative products, including its sustainability, according to the Resource-based View – RBV theory, requires that the resources at its disposal are characterized by value, rareness, imitability and substitutability (Trott, P. 2008). The firm's competitive strength, arguably, would be a reflection of the level of innovation-related investment costs committed as well as of the existence of long-term in-house strategies for managing innovation activities. Any decision to invest in R&D, the factory house of inventions is, according to Knauff (Romanowska, M. 2016) motivated by two factors, namely risk-related motivation and competition-related motivation. Research and development investments are cost-intensive, risk prone and with long periods of anticipated returns. Enterprises and their owner-managers would therefore need to be highly motivated to engage in such activities as many of them are often cash strapped. Knauff argues that firms, including SMEs are eager to remain competitive in a dynamically evolving markets as part of their survival instinct, and are thus, according to Knauff, motivated to readily engage in rather risky innovation-related financial outlays.

c) The quality and nature of firm-based resources

Firm-based resources include material and non-material resources, financial and intellectual, as well as its participation in networks such as clusters. Because SMEs are cash-strapped and are intellectually handicapped as a result, micro and small enterprises are hindered in their innovative drive. The quality of their human intellectual capital is, according to the Competency-based Theory, proportionate to the sum of the entrepreneur and employees' competencies. Literature shows that an enterprise's ability to analyse its activities leading to the development and launching of new products relies on its superior learning capacity (Sok, P. et al., 2013), which is a key factor influencing the quality of human intellectual capital. This limitation, in view of available literature, prevents SMEs from engaging in radical innovation. They are, however, able to improve the quality of their firm-based resources and gain access to innovations through their memberships in brand-related clusters (Bal-Woźniak, T. 2016). The ability of an entrepreneur to develop and sustain relationships with business partners (social and relation competencies) such as in clusters can become a reliable source of resources, especially in the face of insufficient financial support from state and public agencies. This seems to agree with Whittaker, D.H. et al. (2014) opinion that SMEs ability to take advantage of external collaboration (open innovation) depends on the knowledge and experience possessed by their owner-managers, especially at their early stages of development.

A firm's success in innovative endeavours is, as can be understood from literature, highly dependent on its managerial capabilities. Firm-based factors that determine its managerial capabilities, commonly discussed in literature

include organizational support culture, employees' welfare, leadership practices, development of individual skills and knowledge, firm's strategy (Saunila, M. & Ukko, M. 2014), organizational structure (formalized/centralized), reward system, management support and availability of time (Gunday, G. et al. 2008).

d) Organizational support culture

An enterprise's organizational culture that consists of its ability and willingness to implement innovation as well as taking appropriate steps (decisions) can at times be a facilitator of innovation, while being a hindrance at other times (Błaszczuk, D. 2013). Sopińska, A. & Wachowiak, P. (2016) support this argument that a rather conservative approach to organizational culture as well as a centralized organizational structure do hinder innovation drives. Trust, well-defined business goals and strategy based on reliable information, including a properly designed and implemented system of information gathering from customers concerning delivered products and new customer needs are regarded as favouring enterprise innovativeness. These attributes notwithstanding, Błaszczuk, D.J. (2013) has argued that an organizational structure that enhances innovativeness rests on a framework consisting of the enterprises capacity to implement innovation, including the willingness and freedom to do so as well as making sure that appropriate initiatives or efforts are set in motion. The emphasis on the practical aspects of innovation is, in the author's opinion, an argument in support of managerial flexibility/ openness to new ideas, concepts and solutions, freedom of information sharing in line with the changeability of contemporary business climate. Other authors, including Pullen, A. et al. (2009) and Smith, M., et al. (2008) also view organizational culture from the perspective of common beliefs and values by members or as a conglomerate of knowledge, beliefs, behaviours and firm-based social norms that encourage innovative practices. This arguably can be seen as one of the reasons why some micro enterprises might be slow at adopting innovations due to their constraints in human resources and other knowledge limitations.

2.2.2. Constraint of Innovation in SMEs

Constraint of localization

Opportunities and capabilities as signalled in the previous paragraphs do not rest solely in-firm but are also a reflection of the enterprise's localization. The local environment in which an enterprise operates imposes some characteristics, both enhancing and limiting, on their business patterns and the quantity/quality of knowledge (intellectual competence) at their disposal. This reflects M. Romanowska's (2016) argument that an enterprises' internal determinants of competitiveness are consequences of its existence in a given locality which impacts its market, economic, legal, cultural and resource capacities.

Constraint of size

A key distinctive feature of SMEs is their size. The small and medium-sized enterprise sector in many countries is dominated by micro and small enterprises (less than 10 employees), which in Poland constitute over 96% of all enterprises (PARP, 2017). The constraint of size often compels SMEs to be more specialized in chosen activity areas. This, according to the Oslo manual, can be regarded as an advantage since it increases their attractiveness for efficient networking with other firms and public R&D institutions for the exchange of knowledge and possible commercialisation of research findings. The conclusion that can be drawn from existing literature concerning firm size is that the relatively small size of SMEs favours the development of absorptive capability. Such SMEs are characterized by lack of hierarchical and bureaucratic bottlenecks, thus making it easier for them to adopt innovations more quickly (Welsch, H. et al., 2013; Blackburn, M. et al., 2013), as well as to apply informal and strategic controls. Indeed, studies conducted in the Netherlands (Vanhaverbeke, W. et al., 2011) have shown that most SMEs engage in open innovation solely because of their quest to capture new business opportunities and enhance profitability by adapting their business models. The small size of SMEs also favours the flourishing of entrepreneurial culture, more autonomy of their managers and increased flexibility and response times in meeting specific customer needs (Fores, B. et al., 2015). This is reflected in Romanowska, M. (2016) who concluded that an SME's ability to implement innovative endeavours rests on its ability to relate with entities in their environments (open innovation), especially when faced with lack of state institutional support.

The constraint of size is also evidenced in the limitation of human resources, both in numbers of management staff and employees. Micro enterprises, for example, have less than three members of staff, including the owner/manager. This, undoubtedly, impacts the availability of knowledge and its quality. Size also impacts the enterprise's level of involvement in competence development activities. Studies conducted by the European Commission in "Competence Development in SMEs: Observatory of European SMEs, 2003" revealed a positive correlation between an enterprise's size and its ability to engage in competence development. A company's human resources (size and quality) is an indication of the abundance of or limited access to knowledge (intellectual capital) at its disposal at any given time (Żukowska, J., 2019). Of course, small size also has its advantages as it translates to a more flattened structure, thus eliminating or minimizing bureaucratic bottlenecks in decision-making processes. Swift decision-making can result in quicker responses to emerging challenges and opportunities in the business environment.

Constraints of information (knowledge)

Knowledge is a crucial competence in enterprise management, including its organizational, and innovation capability, and it is often considered an intangible

asset in management studies. Limited human resources arguably limit the availability of skills, especially technical and managerial, which may thus be a hindrance to knowledge transfer and utilisation as well as resource and information management regarding existing business opportunities. A. Sopińska & P. Wachowiak's (2016) definition of an innovative enterprise as being an unrelenting effort in seeking and implementing research findings, concepts and inventions underscores this argument.

The relationship between innovation performance and knowledge accumulation at firm levels is discussed in literature. A most readily available way of accumulating and /or developing knowledge by micro and small enterprises is by generating it internally, relying on the skills, antecedent knowledge and experience of their entrepreneur and employees. It is argued that the more diversified the enterprise's internal knowledge, the better its chances of improving the efficiency and reliability of incremental innovation performance (Fores, B. et al., 2015). A conclusion that can be drawn from discussions in the subject literature is that the lack of skills and technological capabilities due to limited human resources forces small and medium-sized enterprises, especially micro enterprises, to seek external innovation partners.

The role of information and its ensuing knowledge is discussed in available literature. An effective strategy for acquiring knowledge, concerning potential innovative solutions/ applications from external sources (open innovation) is a principal requirement for successful enterprise innovation. This seems to be the conclusion reached by Błaszczuk, D.J. (2013) where he submitted that it is the knowledge gained from the quality of available information and not necessarily the enterprise's size that has a more significant influence on innovation. As has been pointed out in previous paragraphs, the utility of such qualitative knowledge will therefore be dependent on the entrepreneur, manager and employees' ability to recognise and absorb available opportunities.

One very important dimension of the information and knowledge possessed by an enterprise is its diffusion/dissemination as a result of which the acquired knowledge can be implemented in innovation processes. Any investment in knowledge capturing that will not be put to practical application for the enterprise's strategic development and goals, which includes innovation, ought to be considered a wasted investment, especially in SMEs characterized by inadequacy of resources. Limited or lack of access to quality information aggravates owner's/managers' ability to grasp and deal with uncertainties of changing business environments (Blackburn, R. et al., 2013). The dynamics of information/knowledge diffusion is determined by the learning strategies of the employees, including the owner-manager, as well as their antecedent level of knowledge acquired through formal and informal education. Knowledge as a key driver of innovative performances can be amassed, according to Fores, B. et al. (2015), both internally and in cooperation with external sources.

Constraint of financial capacity

Innovation calls for huge financial engagement in R&D activities, that involve high levels of risk and whose benefits may only be realized after prolonged periods of time (Fores, B. et al. 2015). The results of research and development, if well managed, will usually translate to greater efficiency of production and business patterns, which can lead to better quality products/ services, and in consequence business success. Since SMEs are often cash strapped, a situation, which may also be attributable to their inability to access credit facilities from lending institutions (Bal-Woźniak, T. 2010), they are, concluding from available literature, reluctant to invest in R&D, the engine-house of innovation. This weakness of SMEs is further aggravated, according to the Oslo Manual (2005), by the fact that investments in innovation and new markets are prone to high risks, unpredictability and uncertainty of returns. These factors have contributed to the dearth of research culture in small and medium-scaled enterprises, thus conditioning them to become recipients and not developers of innovation ideas. This lack of in-house R&D facilities has, according to Derbyshire, J. (2014) led many enterprises to “engage in exploitative rather than exploratory practices that concentrates on incremental innovation”. Exploitation innovation, which refers to a gradual, but steady implementation of innovation ideas without necessarily causing “organizational disruption”, may seem more attractive to micro and small enterprises who lack the capacities to engage enormous financial resources in capital-intensive R&D activities.

Constraints of learning, training capacity & skills availability

The values created in the form of product or service innovation result from the application of the knowledge. This favours the argument that innovation is a process of learning from internal firm-based processes as well as external sources and can thus be treated as the foundation for building specific, unique and distinctive skills of the company. Innovation development in SMEs is not achieved solely through investment in R&D, but also through the acquisition of technical information. This can be achieved by purchasing technical and engineering know-how or using consultancy services. SMEs can also develop their human resources through in-house training, on the job learning or hiring of skilled staff, investing in latest equipment and software – products of innovative research as well as through the development of new marketing channels for own goods and services. The lack of sufficient financing combined with limited human capital can work against these activities and in consequence discourage employees from acquiring ongoing learning and training skills.

The issue of innovation constraints/or limitations of innovation in SMEs was also discussed in “Potencjał polskich MSP w zakresie absorbowania korzyści integracyjnych” by Rogut, A. & Kubiak, K. (2008), who viewed the issue from the perspective of competitive advantage. Low-level innovation in SMEs is attributable to excessive reliance on reducing labour costs rather than concentrate on product differentiation, knowledge intensification, etc.

It is undeniable that difficulties faced by SMEs in their attempts to engage in innovation processes often lead to low innovation performance (Pullen, A. et al., 2009). Nonetheless, there is need to seek ways of achieving higher innovation performance to sustain their survival in a highly competitive market as well as to continue their socio-economic contributions to the economies of their local areas. Skills development is a sure way for SMEs to accomplish such lofty goals, for example, corporate social responsibility (CSR).

Small and medium enterprises have, irrespective of these and other constraints, continued to contribute to their local communities and business sectors by striving to engage in innovative endeavours. This strategic mission, including a desire for sustainability, has led many to develop employee skills relying on in-firm capabilities or to develop networking abilities to maximize synergy effects in participating in brand/industry related clusters.

Constraints of state policies and laws

Varied policies, regulations and/or laws implemented in local, regional and state governments and institutions can influence innovation capacities negatively, especially through reduced investments in SMEs. Factors often cited as dissuading such investments in literature include unstable legislations, such as self-conflicting laws and provisions, transparency of tax laws and their levels, fiscal policies, the role of financial institutions, unfavourable business environments amongst others. Studies conducted by the Polish Confederation of Private Employers “Leviatan” (Rogut, A., et al., 2008) listed high taxes, costs of labour, rigid labour laws as well as unfriendly administrative procedures as the greatest deterrents of innovation drives in SMEs.

In concluding this chapter, it is important to point out that while any distinguishable alteration to existing products, services, technological and organizational solutions can be seen as innovation, meaningful innovative endeavours in pursuit of an enterprise corporate goals of sustainable competitive advantage is often impaired by several factors. Such factors have been broadly categorized into internal and external categories. Enterprises do not exist or function in isolation, hence the impacts of the internal factors can be positively moderated by the enterprise’s external (sectoral, institutional, state policies, etc.) environment. The ability of the owner-manager, a key player in micro and small-scale SMEs to foresee, capture and exploit such externally moderating factors, is based on his abundance of knowledge, experience as well as a flexible approach to new ideas and employee initiatives. Additionally, SMEs are hampered by various difficulties in their attempts to unleash innovation potentials. Some of such constraints commonly discussed in subject literature have been presented. Consequent upon such constraints, SMEs seem to be likely to implement incremental rather than radical innovation, perhaps due to financial constraints, as a way of achieving their corporate objectives of innovation.

CHAPTER THREE

Concept of managerial competences

3.1. Competences: Conceptual Approaches

3.1.1. Competences: Definitions and Classification – a theoretical approach

Competence has been the concern of several fields of study, both in the sciences and social sciences, including philosophy, sociology, management, economics, and ethics, etc. Competences are the qualities or traits possessed by a person to enable him/her to fulfill a purpose. Competence in reference to qualities and traits has been used widely in literature linking it with both entrepreneurs and managers. Some have argued that entrepreneurial competences can be distinguished from managerial competences. However, the behavioural perspective to competency studies (Boyatzis, R.E. 1982) see no need for such distinctions as both share similar roles in their organizations namely, organizing and personnel management roles/ functions.

Entrepreneurs' need for efficiency, in similarity to managers' efficiency, requires them to possess qualities and/traits that enable them have the foresight to recognize and seize opportunities as they emerge as well as the innate drive and willingness to nurture ideas from creation to fruition (Li, X. 2009). Similar qualities or traits that enable managers to perform their role/functions have been referred to in literature as “managerial competences” (Szczepańska-Woszczyna, K. & Dacko-Pikiewicz, Z. 2014). Adopting a more focused perspective, these managerial competences are used in reference to persons occupying management positions in organizations.

The concept has been used, however, in a wider perspective by authors (Mohsin, A. et al., 2017; Wedathanthrige, H. 2014 and Ahmad, N.H. 2007) to refer to owner-managers of small and medium-scaled enterprises (SMEs). Hence, for the needs of this dissertation, managerial competences should be understood as **the qualities and traits possessed by entrepreneurs (owners) or managers in SMEs to enable him/her to effectively accomplish objectives of corporate survival and sustainability through innovation.** Indeed, researchers in the field of management studies have devoted much work in their attempts to identify

factors influencing enterprise innovation (Sankowska, A. 2012). Prahalad, C.K. & Hamel, G. (1990) and Sopińska, A. & Wachowiak, P. (2016) do emphasize that the ability of an enterprise to satisfy customers' needs hinges strongly on the entrepreneur's (owner-manager) core competences.

The need to identify, develop, exploit and manage competences as key resources of enterprises, especially in SMEs often characterized in literature as deficient in quality human resources calls for deeper studies. In consequence, a thorough review of existing literature, foreign and national sources was undertaken, relying on resources available through EBSCO, SCOPUS, Web of Science, Google Scholar and BazEkon databases. The outcome of the study has enabled the author to determine the objectives of this chapter, consisting of three sections. Section 3.1.2 is devoted to presenting selected management theories relevant to the present study. The knowledge so gained will be useful in ascertaining how all or at least some of the competency definitions relate to theories of enterprise management. Section 3.1.3 is an attempt to conceptualize, based on literature review, definitions of competence often mentioned in literature, including their constituent elements. This section will also present some classifications of owner-manager competences identified in the literature review. Section 3.2.1 will be concerned with presenting owner-manager concept of core competences as well as competency domains, while section 3.2.2 will be on presenting some existing models of managerial competences. The last section of the chapter (3.3) will center on the role of managerial competences in the innovative endeavours of SMEs as well as present a list of identified managerial competences that favour enterprise growth and development.

3.1.2. Competency Definitions Based on Management Theories

Management Theories

Science, including management studies, have sought ways to explore and explain the potential roles played by competencies in enterprise development. Literature abound with theoretical views on the matter. The limited scope of this dissertation means that only two of such views, including their later manifestations will be elaborated on, namely the enterprise view-point (resources, abilities, management methods) and the human perspective (manager, employee), who besides being a resource also serves as "capital" in contemporary organizations. Research studies have indicated the existence of proportionate relationship between enterprise abilities and the competences of its owners and managers (Grant 2000 in R. Sanchez).

Resource-based Theory

The Resource-based Theory (RBV) views the organization as a collection of resources and the human factor as a key component that is continuously

transforming and is subject to improvement. The essence of this approach is that an enterprise success, specifically, its attainment of higher competitive advantage, is a consequence of a more efficient exploitation of the quality resources it possesses. This corroborates Bratnicki, M. (2000) and Sopińska, A. (2014) argument that the enterprise's competitive ability depends on the types (*quality*) of resources, processes and abilities (*core competences*) at their disposal. The key assumptions or identifiable peculiarities of RBV (Freiling, J., 2004) can be summarized as follows:

- Resources are non-imitable and strategic. They form the bedrock of the company's survival/ competitive advantage,
- Resources are firm-specific and non-transferable and can be developed to become strategic resources of the firm,
- Resources can be developed to strategic levels through organizational learning and based on knowledge,
- Resources are firm-specific i.e., do not rely on an individual, and are as a result non-transferable. They can, thus, be developed to the level of strategic importance,
- Resources and skills are heterogeneous in nature and the outcome of their exploitation varies over time and across firms,
- Decision making process concerning the market is centered in-house,
- Superiority of performance relies on the possession of more quality resources.

Mohsin, A. et al. (2017) have drawn attention to the ability of an organization to create added value. They argue that this ability is proportionately dependent on the owner-managers' competences to develop and sustain the organization's resource needs.

Businesses have always and continue to function in hostile external environments, for example competitors, localization and a less-friendly business atmosphere. Despite this fact, some authors postulate that SMEs are capable of succeeding if entrepreneurs and owner-managers are equipped with appropriate skills and abilities (Ahmad, N.H. 2007). Such skills, according to subject literature, include having a clear understanding of the business sector, a well-developed business strategy, effective decision-making process, forecasting and planning, adaptability to changes as well as their ability to create and manage a company's vision. It can, thus, be arguably concluded that RBV stresses the importance of performance besides the quality of resources at a person or organization's disposal. This has led to some criticisms regarding its excessive focus on task completion, which contrasts with other theories such as the competency theories that are deemed to emphasize person-related observable behaviours.

Competency-based Theories

The Competence-based Theory assumes that competences are changeable (dynamic) in nature and this, according to proponents of the theory, favours

enterprise development. The theory generated interest following the publication of “The Core Competence of the Corporation” by Prahalad C.K. & Hamel, G. (1990). They asserted in their elaborations that the existence of business entities as well as attempts to meet the needs of customers rested squarely on core competences of the entrepreneurs, who display their person-related skills and abilities. Since the entrepreneur’s skills and abilities are intricately linked with the enterprise performance, the core competences have also been referred to in literature as organizational competences. Although the competence theory is considered in literature as evolving from RBV, it does possess some distinctive features, which are summarized below (Freiling, J. 2004):

- Competence is considered the most important enterprise resource as it combines both individual and non-individualized competences,
- Competences can be used to exploit the potentials of owned resources in response to market requirements,
- Quality of entrepreneur’s competences, knowledge, skills and abilities, are crucial to enterprise performance,
- Decision-making process is based on combined firm-specific and in-bound resources – a networking process,
- Competitive advantage is achievable through efficient combination of both resources,
- Knowledge according to competence theory is implicit as it is obtainable only through “learning-by-doing” and is hence non-transferable,
- Knowledge as a strategic tool evolves and subject to improvement,
- Profuse resource availability is not enough to achieve performance differentiation, hence it is important to shift the causal relationship away from resource abundance,
- Firm-specific competences are not necessarily internal resources, but resources in networks of enterprises.

Despite the visible differences, both theories, however, do share some common features. They are both dynamic in approach, responding to evolving market situations thus making the decision-making process susceptible to immense uncertainty (J. Freiling, 2004:9). The role of the company’s main actors cannot be underestimated as their proactive attitudes invariably mold the organizational environment. The quality of decision-making in both theories is variable over time due to the impact of newly emerging knowledge and the personal characteristics of the decision-maker.

The core-competence theory has evolved over time. One of such manifestations is the “Entrepreneur Competence (EC) Theory” (Man, T.W. et al., 2002; Mohsin, A. et al., 2017), which analyses the roles played by entrepreneurs, who in SMEs are either the owners or owner-managers. The significant element of this approach is the entrepreneur himself whose behavioral attributes are both measurable and observable. Indeed, several researches in enterprise management studies have focused on the role of the entrepreneur (owner-manager) in achieving sustained

competitive advantage as result of his efficient and effective exploitation of material (*tangible*) and non-material (*intangible*) resources of the enterprise. The organization's competences, including the owner's managerial competences, constitute the primary factors causally related to higher efficiency of performance (Mohsin, A. et al. 2017), as well as the enterprise innovation. The fact that the quality of achieved corporate goals depends on the quality of processes, methods and practices engaged in their accomplishment (Gunday, G. et al., 2008), buttresses the significant role of the owner's managerial competences.

Two new developments in the "*Entrepreneur Competence Theory*" worthy of mention due to their relevancy to this dissertation are the "*Personal Entrepreneurial Competence*" – PEC (Wedathanthrige, H., 2014) and the "*Female Entrepreneurial Competence*" – FEC (Mitchelmore, S. & Rowley, J. 2013; Gupta, V.K. et al., 2009) theories. The growing interests in these two approaches is the belief that a deeper understanding of the kind and quality of the competences displayed by enterprise owners, male or female, can enhance further developments of such competences, unleashing their potentials (Mitchelmore, S. & Rowley, J., 2013) for enterprise growth performance. This argument is supported by analyses of the role played by women entrepreneurs in developing SMEs presented in "*Przedsiębiorczość Kobiet w Polsce*" (PARP, 2011).

Some of the most frequently mentioned PECs in subject literature include self-confidence, networking, independence, planning, goal setting, opportunity seeking, risk taking, commitment, persistence and persuasion. Since Personal Entrepreneurial Competences (PECs) are assumed in literature as a conglomerate of capabilities possessed by the male or female business owner for a successful performance (Wedathanthrige, H., 2014), they can also be used as measures, benchmarks and criteria, not only to ascertain success potentials of would-be managers but perhaps as a learning output in designing training/ educational curricula. They can also be useful to learn if PECs of successful entrepreneurs differ across brands or types of innovation and if such demographic features like gender and age do exercise any influence. Studies conducted in Southern and Western provinces of Sri Lanka (Wedathanthrige, H., 2014) clearly indicated a marked difference between the owner-manager PECs of better performing, innovative SMEs and poorly performing, non-innovative SMEs. The findings corroborate Man, T. et al. (2002) earlier claims that PECs have both direct and indirect impacts on SME performance. A 2012 GEM study of female entrepreneurs conducted in the UK led to the conclusion that a deeper understanding of FECs can be helpful in designing competency profiles and in enabling women conceptualize their strengths and weaknesses in business ventures (Mitchelmore, S. & Rowley, J. 2013).

All three manifestations of the competency theory, EC, PEC and FEC, understand the competence of the entrepreneur as his/her ability to identify, develop and exploit opportunities and resources, including network resources, for the company's innovation drives as well as the sustainability of its competitive

advantage. They also emphasize the existence of a close relationship between competences of the entrepreneur and innovation in small and medium-sized enterprises. Arguments provided in literature suggest that competency theories are centered on strategic management and are future oriented thus making them more suitable for tackling un-envisaged challenges, the hallmarks of turbulent modern market economies.

Defining Competence

Competence as a concept has continued to engage the concern of both theorists and practitioners, researches in various academic disciplines including organizational management studies. It is recognized in organizational management literature that an enterprise's ability to accomplish its set objectives, attaining and sustaining competitive advantage for example, rests on its organizational competences.

Definitions of "competence" vary across literature and the desire for a uniform, across-the-board definition has remained elusive. Many authors have instead resorted to defining the constituent elements of competence, while others have concentrated on the professional intent/purpose of competence needs and yet others specify the characteristic features of a competence.

The European Commission defines "competence as the mix of human knowledge, skills and aptitudes serving the enterprises' productive purposes and therefore its competitiveness" (EC, 2003/1), which reflects the ideas expressed in table 11. Besides, the European Commission's definition also spells out 10 competency components, (learning to learn, information processing and management, deduction and analytical skills, decision making skills, communication skills, language skills, teamwork, team based learning and teaching, creative thinking and problem solving skills, management and leadership, strategic thinking, self-management and self-development, and flexibility), a European citizen should acquire for improved employability. Although the EC's definition may not be directly related to enterprise development, it is considered significant for the needs of this dissertation as it serves as a useful guideline for the training of future employee and enterprise managers, thus linking science and practice.

A more scientific approach to defining competence was presented by Markus, L.H. et al. (2014), who postulated that competences can be defined from three perspectives, namely:

- educational, that evolved from the need to develop skills in accordance with occupational standards that enhance expected performances and award of relevant credentials;
- behavioral, which has been propelled mostly by the work of McClelland, D.C. (1973) and Boyatzis, R.E., (1980/1982). Competences, according to David C. McClelland (1973), "are attributes of any individual useful for predicting his personal observable behaviours". Boyatzis, R.E., (1982), on the other hand, broadly defines it as "an essential, fundamental trait, which leads to

a more efficient and better accomplishment of professional responsibilities”. Both have had enormous impacts in management studies despite having their roots in psychology.

- organizational perspectives, which postulates that an enterprise’s competitive advantage, the result of innovative solutions, relies on the quality of its organizational competencies. The work of Prahalad, C.K. & Hamel, G. (1990:123) “*The Core Competence of the Corporation*” is worth noting. They asserted that the existence of business entities as well as attempts to meet the needs of customers rested squarely on core competencies of the entrepreneurs, who display their person-related skills and abilities. Their work has become a reference material for competence theories in organizational management studies.

Definitions of competence in subject literature are countless and the limitations of this study do not permit any detailed discussion of it all. A summary of some selected definitions considered significant to the aims of this study and ones that draw from management theories are presented in table 11, followed by a short discussion.

Table 11. Definitions of competence by sources/ authors.

Source/ Author	Definition of competence
<i>1</i>	<i>2</i>
European Commission (EC, 2003/1)	<i>Competency is the mix of human knowledge, skills and aptitudes serving the enterprises' productive purposes and therefore its competitiveness</i>
Jabłoński, M. (2011)	<i>Employee competencies are all employee-related personality traits such as knowledge, skills, values, and attitudes on which he relies to be able to perform assigned tasks.</i>
Walkowiak, R. (2007)	<i>Competencies are the knowledge, skills, personal qualities, experience, attitudes and behaviours of employees intended for the efficient execution of tasks in a continuously transforming work environment.</i>
Boyatzis, R.E. (1982)	<i>Competence as the disposition of a person, which leads to behaviours consistent with the requirements of the job specified by the parameters of the organizational environment, which in turn yields the desired results.</i>
Woodruffe, Ch. (1993)	<i>Competence is a concept related to work and refers to the areas in which a person is competent.</i>
Levy-Leboyer, C. (1997)	<i>Competence is the integrated utilization of abilities, personality traits, as well as the acquired knowledge and skills, in order to achieve the successful completion of a complex mission within the enterprise.</i>
Mansfield, R.S. (1996)	<i>Competencies as a set of a person's traits that decides about his level of achievements at work.</i>
Bombiak, E. (2014)	<i>Competence is a combination of elements of skill and personality traits that determine differentials in levels of work performance between individuals.</i>

<i>1</i>	<i>2</i>
Rostowski, T. (2004)	Competence as <i>the talent, skills and abilities, knowledge, physical skills, style, personality, principles and values, and interests possessed by an employee, which if developed and applied can enable him accomplish the strategic objectives of the enterprise</i>
Filipowicz, G. (2004)	Competence is the employee's <i>disposition in terms of the knowledge, attitudes and skills that enable him accomplish assigned tasks at the given role/position</i>
Rakowska, A. & Sitko-Lutek, A. (2000)	Competence is <i>ability to perform activities relative to the profession or function in accordance with expected standards</i> . This refers to the ability to transfer one's knowledge and skills in new situations within one's professional scope.
US Dept. Labour, Employment & Training Administration (2005)	Competence as <i>the ability to apply or use a set of related knowledge, skills, and abilities required to successfully perform "critical work functions" or tasks in a specific work environment</i> .
Mohsin, A. et al. (2017)	<i>Competencies as the underlying characteristics that are casually related to effective and / or superior job performance</i> .
Quan, L. (2015)	Competence as <i>the characteristics, skills and behavior of leaders that contribute to the superior performance of an organization</i> .
Sanchez, R. (2004)	Competence as <i>the ability to sustain the coordinated deployment of assets in ways that help a firm achieve its goals</i> .

Source: Own elaborations based on literature review

The definitions contained in table 11 can be seen to share some commonalities. These include the fact that:

- they enhance the accomplishment of corporate objectives,
- they are organizational resources that can be learned and improved upon,
- when deployed, they manifest individual behaviours, consistent with job/ position related expectations, hence their observability and measurability,
- they are person/ job-related, consisting of skill/abilities and personality traits,
- they embody all characteristics of an individual, useful for efficient job performance.

This notwithstanding, it can be observed that the definitions have not avoided the problem of discrepancies/inconsistencies that plague the constituent elements of competences. A source of the discrepancy is the cover of the definition. For example, while T. Rostowski's (2004) definition that includes all traits of the employee can be considered all-embracing that of Quan, L., (2015) is rather narrow, focusing on the desired competences of a leader. It thus, concentrates on one aspect of the role/function of owner-managers, their leadership roles. The leadership competences in question were grouped by McCauley (Quan, L., 2015:19) into three categories, namely for leading an organization (managing change, problem solving and decision making, etc.); for leading oneself (demonstrating ethics and integrity, displaying drive and purpose, etc.); and for leading subordinates (communicating effectively, developing others, valuing diversity, etc.). A weakness of this division, in the author's opinion, is that

despite being role specific they do not cover all aspects of managers’ roles and functions in the sense of contemporary enterprise management.

The apparent lack of across-the-board uniformity of definitions of competence as a concept has made many authors to resort to defining the constituent elements of competence while others have concentrated on the professional intent/purpose of competency needs. Others, for example Walkowiak, R. (2007) and Sanchez, R. (2004) have resorted to specifying the characteristic features of a competence. The latter’s focus on organizational competences had led to the identification of four qualities a competency definition should embody. A definition of competency should embody dynamic (reflecting the changeable business environment), systemic (the inflows and outflows of assets), cognitive (effective deployment of assets for specific activities) and holistic (the firm as an open system) aspects. While it is agreeable that each of the competency definitions provided in table 11 does reflect one or more of these qualities, only the definitions by the European Commission (2003/1) and the US Department of Labour, Employment and Training Administration (2005) seem to be holistic in approach.

Consequently, both Walkowiak, R. (2007) and Sanchez, R. (2004) have, independently suggested what they termed the “characteristic features” that competency definition should embody to enhance uniformity of understanding. Table 12 below illustrates these characteristic features, matching them with Antonacopoulou, E.P. & L. FitzGerald’s (1996) personal and contextual approach that views competence as a tool useful for studying organizational performance, for efficient communication of corporate ideals, and vision for effective implementation as well as for designing and managing an organization’s change and development.

Table 12. Characteristic features of organizational competences by Walkowiak, R. (2007) and Sanchez, R. (2004) juxtaposed with Personal/Contextual Approach by Antonacopoulou, E.P. & FitzGerald, L.

Contextual approach	Competence according to Walkowiak, R.	Competence according to Sanchez, R.
<i>1</i>	<i>2</i>	<i>3</i>
Competences suitable for designing, managing organizational change and development	<ol style="list-style-type: none"> 1. reflect the dynamicity and changeability of the company’s development experience; 2. evolve correspondingly with the environmental variables relative to the long-term disposition of concerned units/ persons; 3. be subject to transformation (adaptable for use in varying work positions); 	<ol style="list-style-type: none"> 1. the period of its application in the long or short-term perspective. 2. the process of application, (a simplified or complicated procedure); 3. contextual aspects as some competency elements are more valuable in some circumstances than others. 4. companies go through dynamic and static moments of growth and competences should reflect such in-company evolving changes.

1	2	3
Competences suitable for understudying organizational performance	4. be behaviorally based to enable measurability and observability; 5. be synergistic as being able to work holistically yields more profitable result than sum of individual competences; 6. be relative as they express value and meaning only in specific job/functional situations; 7. be operational in nature since they are revealed in activities	5. the locus of the key asset. Is it sourced from company-specific assets or the company's external resources?
Competences suitable for communicating ideas and vision	8. be subjective in their nature as they are inseparable constituents of a person, team or organization.	6. the level at which competence functions (senior, middle or junior management).
Not identified	9. be strictly connected with the professional task as they are valued only based on their impacts. Non-material. 10. be rare and unique as there are no two persons with same competence potential	7. the knowledge that forms its base. Does it require a practical, (know-how), theoretical (know-why), or strategic (know-what) knowledge? 8. the scope of its application. Does it have broad, industry-wide or narrow activity-specific application?

Source: Own adaptation based on Bombiak, E. (2014) *Kompetencje Pracownicze – istota, pomiar i sprawozdawczości*. Zesz. Nauk Uniwersytetu Przyrodniczo-Humanistycznego w Siedlcach Nr 103, 173–191; Sanchez, R., (2004). *Understanding competence-based management: Identifying and managing five modes of competence*. *Journal of Business Research*, 57, 5, 522-523; E. P. Antonacopoulou, E. P. & FitzGerald, L. (1996). *Reframing Competency in Management Development*, *Human Resource Management Journal*, 6,1, 30

The observation from the illustration above is that a competence is a practical attribute/skill that is entity-specific, evolves over time relative to the situation or circumstance (contextual/adaptable), observable, measurable and is capable of creating value. This resonates with Antonacopoulou, E.P., & FitzGerald's, L. (1996) personal and contextual/situational approach. The observable differences are only a pointer to the fact that continued validating empirical studies ought to be undertaken for a clearer understanding of competence as a concept, and its constituent element.

In concluding this section, it can be unequivocally stated that entrepreneurial competence theories go a long way to enhance the role of owner-manager competences in SMEs, especially their performance. Equally convincing is the argument that all attempts to assess innovative achievements in enterprises without understanding the role of the entrepreneur's competences would be ineffective. Since majority of SMEs in Podkarpacie province are micro enterprises, established and managed by their owners, the relevance of PECs and FECs approaches to this dissertation is overwhelmingly obvious. Subsequently, the two approaches will be exploited to determine the owner-manager competences, the causal relationship between them and demographic features like gender and age and if they differ across brands as well as between types of innovation.

Consequently, for the needs of this dissertation, the author has operationalized the competence concept as: *the set of traits (knowledge, skills and attitudes) of an individual, identifiable through his behavioral outbursts that enable the individual to identify, evaluate and exploit/or develop available opportunities, transforming them into useful outputs in pursuance of the enterprise's objectives.*

The process of competency classification and identification of competency models is considered as appropriate steps towards achieving such objectives, especially regarding entrepreneurial competences in SMEs. The next section will be devoted to these two aspects.

3.1.3. Overview of competency classification patterns

Definitions concerning competences in available subject literature have always associated them with identifiable constituent elements such as skills, capabilities, knowledge, learning, coordination and relationships (Sanchez, R. 2004), as well as personal traits, experience, behaviours and attitudes (Walkowiak, R. 2007).

It is, however, observable in modern literature that the list of competences and its constituents remains inconclusive and has been dogged with inaccuracies, overlaps and counter debates, which according to Sanchez, R. (2004) have arisen due to inconsistencies in the use of terminologies as well as approaches.

The controversies notwithstanding, there is the general conviction that an enterprise ability to sustain and improve upon its competitive advantage rests on being able to keep pace with or ahead of its rivals. This, to a large extent, seem to explain the intense interests of both HR practitioners and management scholars in further studies to uncover the potentials of entrepreneurial and core competences. It is the author's postulation that a deeper knowledge of competences would improve their exploitation for greater efficiency of owner-manager roles/functions. What has been regarded a key weakness of competency approaches – the lack of uniformity regarding competency components – has become the driver of numerous classifications in literature.

Scholars in organizational management have attempted to minimize and perhaps eliminate the sources of controversies and inconsistencies in competency

studies by categorizing competences and related concepts. This categorization is an attempt to identify and exploit skill-sets which would enhance the performance of owner-managers. This, in the author's view, is important in management studies, as it is understood from prevailing literature that it is the appropriate agglomeration of various skill-types and behaviours that makes the difference between average or excellent performance of owner-managers or organizations. This is supported by Janjua, S. Y. et al. (2012) who concluded that the conceptualization of competency/skills requirement for managerial jobs would remain elusive without a proper competency classification.

Categories of competency

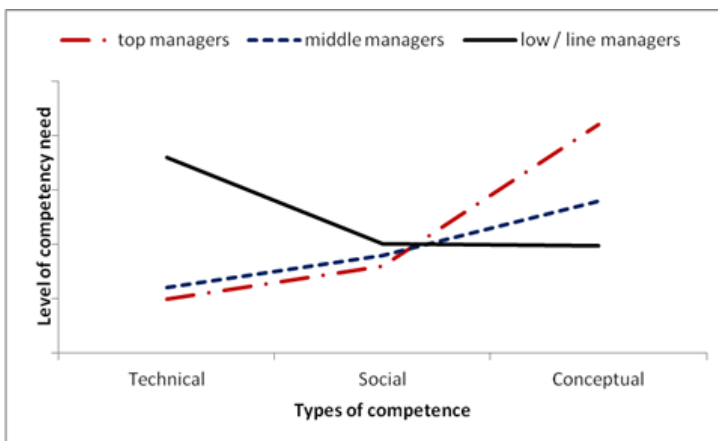
A variety of competency classifications exists in subject literature, using various criteria for classification such as the managerial hierarchical level involved, the need and significance of use, the significance of time duration and/or period as well as whether it is based on the personal features, behavior, knowledge or skills of a potential manager. These general classification criteria which also include those based on source or reason for the classification, managerial perspectives and organizational needs are illustrated in Appendix A1 (p. 203–204). Categorization can also, according to Li, X. (2009), be based on behavioral (e.g., Boyatzis, R.E. 1982) and competency (e.g., Man, T. et al., 2002) approaches. Some very common ways of classifying competences in literature include:

- a) Soft and hard competences were promoted by Jacobs, R., (1989) as provided in Janjua, S.Y. et al. (2012). Hard skills, according to this classification include analytical and organizational skills. Pocztowski, A. (2003), on the other hand defines them as a set of knowledge and skills needed for the practical application of methods, techniques and management tools, while creativity, interpersonal and behavioral skills are regarded as being soft competences. The critics of this classification, including Woodruffe, Ch. (1993) argue that the distinction between soft and hard competences is difficult and cumbersome. Hard competences in M. Weber's (2002) definition are clerical qualifications acquired through statutory education and needed for the employee to perform specific tasks.
- b) "Threshold and Performance Competencies" are competences proposed by Boyatzis, R.E (1982). They represent the basic or minimum requirements needed by an employee to carry out the assigned tasks (threshold competences) and the skills needed to achieve higher or excellent achievements (performance competencies). It is worth mentioning here the contribution of Pocztowski, A. (2003), which distinguishes between threshold and distinctive competences. Competences like leadership, focus on creativity, tolerance for ambiguity, willingness to learn, empathy, future orientation and awareness of value are needed by managers to excel in their role positions. For him consulting with advisors, expertise, problem solving, communication, and building relationships are threshold competences any manager should possess.

- c) Classification based on the organization's hierarchical structure. It is a competence classification introduced in response to the need to determine the skills/competencies required by managers at various levels of managerial responsibilities to enable perform their roles/duties more efficiently. Besides, the interpersonal skills considered as prerequisites of effective leadership, competences needed by managers for effective performance are generally grouped into conceptual, technical and social categories (Król, M. 2013). Interdependencies and relevance for levels of their needs are often graphically represented in literature (figure 4).

Figure 4 depicts the significance of three theoretically derived competency classes in relation to management positions in an organization. It shows technical skills to most significant and needed at lowest levels of management, for example line managers. Its significance, however, diminishes as one moves up the managerial ladder. Technical skills/competences are the methodological knowledge of dealing with processes and handling tools. Conceptual competences, on the other hand, are most required at top management levels, who require analytical, systematic and visionary thinking abilities to tackle business challenges, especially in enterprises engaged in innovative activities to sustain their market competitiveness. Social skills, sometimes interchangeably referred to as interpersonal skills are needed by managers at any level of hierarchy to enable them work efficiently with and lead teams. This does not suggest, however, that it is enough for a manager to have abundance of one set of the skills to be better performing. It is the possession of all three competences in varying proportional mix that reflect prevailing circumstances, which differentiate a high-flier manager from a mediocre one.

Figure 4. Graph illustrating competency type and level of managerial tasks



Source: Own elaboration based on Springer, A. (2011). *Problemy definiowania i klasyfikowania kompetencji pracowników*. *Zeszyty Naukowe Wyższej Szkoły Bankowej, Poznań*, (34), 5, 249–259.; Król, M. B. (2013). *Kompetencje interpersonalne i cechy innowacyjnego menedżera projektów*. *International Journal of Contemporary Management*, 12(2), 190–198

- d) Theoretically derived and Empirical Classification, (Boyatzis, R.E. et al. 2000). The later classification has gained much popularity as it is based on empirical analysis, thus enhancing the comparability of findings. The theoretically derived competences have, according to Janjua, S.Y. et al. (2012) been grouped in 5 classes representing the skills, knowledge and attributes (social and personal) needed for work positions. The classes, functional, generic management, social, cognitive and personal traits are contained in table 13 below, with their descriptions and names of authors that have discussed the relevant competence – types.

Table 13. Competence classes based on managerial tasks, descriptors and related authors

Competence type	Descriptive traits	Proponents Authors
1	2	3
Technical/Functional/ Occupational	Methodological knowledge and know-how. Subject-specific. Vocational and technical skills acquired through formal education, trainings & apprenticeships.	Hogan & Warrenfeltz, (2003); Kolasinska, E. (2011); Staniszewska, A. (2014); Bombiak, E. (2014); Janjua, S.Y., et al. (2002); Król, M. (2013)
Generic Management	Non- firm or industry specific. Cuts across all managerial jobs and positions. It is neither about the technical aspects of the job nor the personality traits of managers.	Hogan & Warrenfeltz, (2003); Viitala, R. (2005); Bartman et al. (2002); S. Y. Janjua et al. (2002);
Social / Interpersonal	Skills and behaviours that make a competent manager. Social awareness, relationship management, communicating, effective team players, networkers, empathy, motivating, delegating, decision-taking, conflict management.	Hogan & Warrenfeltz, (2003); Viitala, R. (2005). Kolasinska, E. (2011); Filipowicz, (2004); Staniszewska, A. (2014); Boyatzis, R. (2008); Król, M. (2013)
Cognitive (Intelligence)	Ability to identify, think, analyse information/ situations and resolve job-related difficulties and using innovative solutions. Analytical, visionary and creative thinking for superior performance.	Kolasinska, E (2011); Filipowicz, 2004; Boyatzis, R. (2008); Król, M. (2013)
Personal Characteristics	Core values, traits, motives and intents of a person. Achievement oriented, willingness to learn, ambition, assertiveness and self-esteem, stress management.	Hogan & Warrenfeltz, (2003); Bird, (2003); Kolasinska, E. (2011); Filipowicz, (2004); Staniszewska, A. (2014); Bombiak, E. (2014); Król, M. (2013)

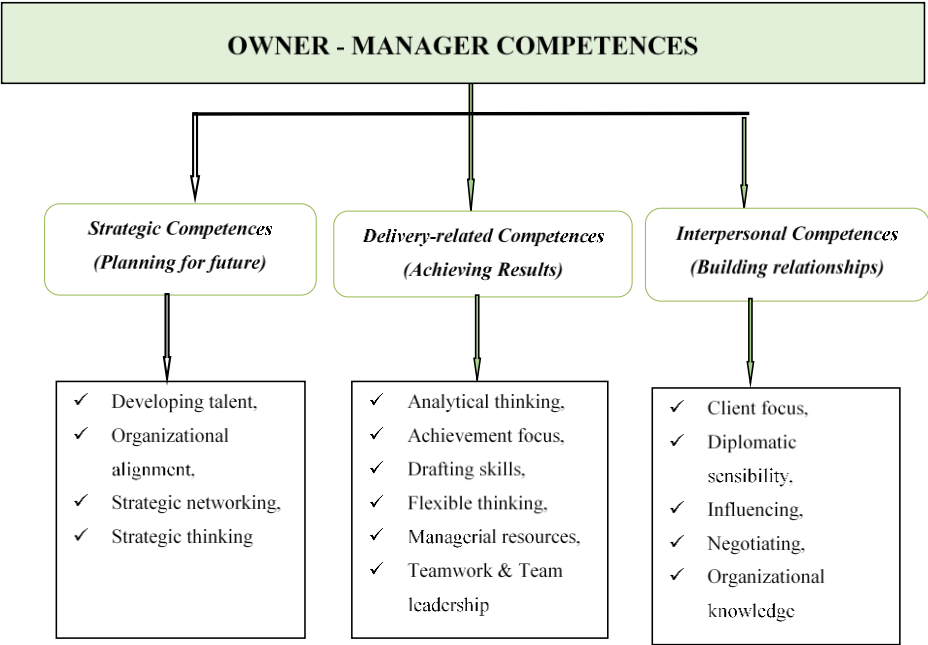
1	2	3
Emotional	Human's emotional impact on personal and professional life. Includes the ability to recognize, understand and use emotional information about oneself (self-awareness), empathy, intrinsic motivation etc.	Hochschild A., (2009); Illouz, (2010); Boyatzis, R. (2008)
Cultural	A set of skills that enable participation in a society and its cultural attributes.	Sztompka, (2007); Kolsińska, E. (2009)
Physical	Competencies required for the physical demands of a position. Includes physical ability, psychophysical ability, and sensitivity.	Bombiak, E. (2014)
Organizational	Ability to coordinate deployment of firm's assets with the aim of achieving its objectives in line with its mission and vision, they ought to be dynamic, systemic, cognitive and holistic.	Sanchez, R. (2004)
Meta-competence	Competences related to communication, self-development, creativity, analytic and problem-solving. Applicable to all/most professions. Fundamental / transferable between tasks.	Le-Deist, F.D. et al. (2005); Asumeng, M. (2014)

Source: Own elaboration based on the work of Janjua, S. Y., Naeem, M. A., & Kayani, F. N. (2012) *The competence classification framework. A classification model for employee development. Interdisciplinary Journal of Contemporary Research in Business, Institute of Interdisciplinary Business Research, 4(1), 396–404*; Kolasinśka, E. (2011). *Kompetencje a Rynek Pracy i Struktura Społeczna. Acta Universitatis Lodziensis, Folia Sociologica 38*; Asumeng, M. (2014). *Managerial competency models: a critical review and proposed holistic-domain model. Journal of Management Research, 6(4), 1–20.*, and Król, M. (2013). *Kompetencje interpersonalne i cechy innowacyjnego menedżera projektów. International Journal of Contemporary Management, 12(2), 190–198*

Another classification, besides the EU's 10 competency constituents earlier referred to in defining competence worthy of mention at this stage is the OECD's 15 core competences, which are grouped in three functional areas, i.e., competences aimed at achieving results, as well as strategic and interpersonal competences. The constituents of each of the groups (figure 5) indicate that the OECD classification refers to managerial roles in organizations. It covers strategic planning through visualization of corporate goals and organizing resources (human and material) for the needs of goal achievement. Since having the knowledge

cannot be seen as enough, a manger should be able to convince subordinates to the goal and mission, as well as be able to network with external sources to drive his/corporate ideals to fruition. Such a manager should be able, in the author’s opinion, recognize opportunities and be committed to task achievement. The OECD classification can be adjudged as tending towards competency modelling.

Figure 5. Owner-manager core competency constituents according to the OECD



Source: Own elaboration based on data from OECD, (2014). Competency Framework.

This discussion has been based on competency classification that relied on prior knowledge in which 5 competency classes (technical, social/interpersonal, cognitive, personal, and meta-competence) have featured prominently. This corroborates Le Deist, F.D. & Winterton’s, J., (2005) claim that knowledge, skills, capabilities, traits and abilities are commonly mentioned categories of competences in literature. This is equally supported by Mühlbacher, J. et al. (2009) who concluded that classifications based on the ASK (attitude, skill, knowledge) approach are more holistic and comprehensive as they take overall look of the owner-manager from his entrepreneurial and managerial roles.

The various classifications mentioned in section 3.1 above were earlier steps towards identifying sets/groups of competencies, relative to their suitability for varied job/position roles in enterprises. However, managerial studies have continued the search for comprehensive lists of managerial competences (Viitala, R. 2005, Janjua, S.Y. et al. 2012), specific to their professional and/ or organizational

roles in an increasingly competitive work environment. Section 3.2 of the chapter will take a look at empirical approaches to competency classification. The modelling approach via clustering is one of such steps in this direction.

3.2. Key managerial competency models

3.2.1. Concept of managerial core competency models – research review

One of such approaches, in reference to the fields of Human Resources development and Management studies, is the identification of competences core relevant for efficient job or role performance. For SMEs whose business functioning thrives in volatile market environments the identification of core competences of their owner-managers is crucial as it would enable them to respond more appropriately to emerging opportunities. Bratnicki, M. (2000) had earlier in his studies, based on the Resource theory of Knowledge-based enterprise argued that core competences are sets of resources, processes and capabilities on which any enterprise's competitive advantage revolves, thus enabling its penetration of important markets (...) or its creation of strategic frameworks. Both theories, often regarded as fundamental in organizational management thus seem to claim core competences as pillars of competitive advantage.

Core competence and Competency Model - Definitions

The core competences of a manager have been defined in literature as a collection of competences (qualities, abilities, skills and other capacities) that a manager needs to successfully perform assigned tasks and functions. The core competences of employees, including the owner-manager, cut across various classes of competences as observed in section 3.1. The need to identify managers' core competences has been claimed to evolve from the desire to identify such competences that are characteristic for a given work position (Skorkova, Z. 2016). Core competences can be behaviourally related and are hence described as competency clusters. Core competences that constitute a cluster exhibit distinct interrelationships. These, according to Boyatzis, R.E, Goleman, D. & Rhee, K.S. (2000), can manifest as being antagonistic, compensatory or complementary with no defined pattern as its response is circumstantial. Clusters, on the other hand, can be relatively grouped together in a specified fusion of knowledge, skills and personality traits, thus facilitating efficient performance of responsibilities. Clustering of core competences often referred to as competency models should be clearly defined and be measurable with standard indicators of performance (Skorková, Z. 2016). Clusters that constitute a model should in Boyatzis, R.E. et al., (2000) opinion be complementary, compensatory and enhance development.

Varied kinds of competency models exist in subject literature, but the focus in this dissertation is on models for understanding management/entrepreneurial practices. A competency model is, hence defined as a description of the characteristics of a competence-related performance against which performances of employees and owner-managers can be measured, analysed and evaluated relative to the organization's objectives. Other similar definitions in literature include: R. S. Mansfield's (1996) detailed "behaviourally specific description of the skills" and traits for work efficiency expected of employees: Juchnowicz, M. & L. Sienkiewicz's (2014) set of all competences required of an organisation's employees, reflecting their position and/or organizational roles as well as Whiddett, S., & S. Hollyforde's (2003) a set of domains that are composed of competences and behavioural determinants of performances expected. The conclusions that can be inferred from these definitions are that competency models:

- suggest desired types of behaviours for an employee, necessary for accomplishment of assigned tasks,
- provide indications of levels of competence a would-be employee should possess,
- include measurable performances expected of a staff at a given position/role,
- indicate comparability of performance for similar positions in a company as well as between companies in a given sector, for example SMEs.

Competency modelling, as per the definitions above, enables an enterprise to identify, specify and develop its organizational and functional competences to improve its competitiveness and sustainability in dynamically transforming markets. This, of course, depends on the proper alignment of proposed model with the needs and specificity of the organization, sector or department where it is to be implemented.

Definitions of competency models in similarity to other aspects of competency studies have been dogged with inconsistencies, a fact which according to Whiddett, S. & Hollyforde, S. (2003) has been due partly to the complexity of their designs. Undoubtedly, however, competency models have remained useful management tools in 21st century organizations. This according to the US Dept. of Labour, Employment and Training Administration (2015) may be due to several reasons, including:

- offering useful set of criteria for employee recruitment and evaluation process,
- enabling the comparison of present competences with future needed competences helps to identify training needs for specific employees or job roles,
- defining competences in line with organizational mission and goals, set criteria for decision-making processes, as well as designing business policies,
- making available commonly accepted definitions of factors impacting on staff efficiency thus enhancing a company-wide understanding of issues concerning enterprise performance, providing knowledge about what factors (skills, abilities and knowledge) are relevant for work efficiency and its associated consequences, it becomes motivational for skills acquisition and attainment of higher levels of performance.

The author has, for these reasons and the application goals of the dissertation, decided to present some selected models, including empirical based ones to facilitate adequate evaluation of the study findings.

3.2.2. Existing Models of Managerial Competences

Empirical based approach to classification has generated a lot of interest both in management studies and in HR practices in the search for in-depth knowledge concerning the propriety of roles played by competences in organizational performance. The result has been the emergence of varied competency models, some of which are listed below due to their relevancy to the goals of the dissertation, which is identifying the core competences of owner-managers of innovative SMEs. Detailed lists of competency domains, according to literature, and their descriptors are presented in Appendices A2- A7 (pp. 205–222).

- 1) Integrated Company Model (ICM), Boyatzis, R.E. (1982). It outlines the themes and associated clusters of competences deemed necessary for managers. Since the approach adopted for this dissertation is that owner-managers of SMEs do perform managerial roles, besides their entrepreneurial functions, the knowledge contained in the ICM model is considered essential. A brief presentation of the model is provided in Appendix A2 (p. 205).
- 2) The Great Eight Competencies (Bartram, D. 2005:25). This is the outcome of the validation process undertaken by Bartram, D., on existing competency classifications. The model presents eight competency domains, useful in determining manager and employee performance in the workplace. A strength of this model is the possibility of using it to explore the validity of potential predictors of workplace performance, see Appendix A3 (p. 206).
- 3) Multi-dimensional framework of entrepreneurial competences (Winterton, J. & Winterton, R., 2002:26). The domains identified in their studies included: cognitive (possession of relevant knowledge), functional (goal and action management, leadership skill and human resources skill), personal (acting assertively, behaving ethically, building teams, communicating, focusing on results, influencing others, managing self and searching for information) and meta-competences (high order abilities that include ability to learn, adapt, anticipate and create) (Appendix A4, p. 207). The model, contrary to the others mentioned, is not validated.
- 4) Man, T.Y. (2001) A validated model conducted among SMEs in Hong Kong that identified 8 competency areas/ domains, i.e., Opportunity, Relationship, Conceptual, Organizing, Strategic, Commitment, Learning and Personal. The model is similar to that achieved in two later studies namely, Man, T.Y., Lau, T. and Snape, E., (2008) and Man, T.Y., Lau, T. & Chan, K.F., (2002). It is worthy of note, however, that the study by latter did not identify learning and personal as competency domains (Appendix A5, p. 208).

5) Entrepreneurship Development System- EDS (Phelan, C., 2014) EDS has been applied as a self-evaluation tool, where respondents assess their abilities against the entrepreneurial skills grouped in four categories that include technical, managerial, entrepreneurial and personal maturity skills (Appendix A6, p. 209).

Female Entrepreneurial Competency Model (Mitchelmore, S & Rowley, J. 2013). Their contribution to the debate as well as for the need of this dissertation is significant. Despite being conceptual like other approaches, it focuses on the gender issue, identifying female core competence clusters in recognition of the increasing role of women in entrepreneurship, especially in SMEs. Four female entrepreneurial competences (FEC) clusters were identified, namely personal and relationship, business and management, entrepreneurial and human relations competencies (Appendix A7, p. 210).

The domains (competency models) identified by some commonly cited articles in literature are illustrated in table 14 below.

Table 14. A summary of constituents of empirical competency models with corresponding authors

Competency domains/model constituents	Names of authors					
	Mohsin, A.B. et al., 2017	Ahmad, N.H., 2007	Man T.Y. 2001 (validated)	Winterton, J. & Winterton, R., 2002	Man, T.Y., Lau, T. & Snape, E. 2008	Man, T.Y. Lau, T. & Chan, K.F. 2002
1. Strategic	x	X	x	x	X	x
2. Conceptual	x	X	x	x	X	x
3. Opportunity	x	X	x	-	x	x
4. Relationship	x	X	x	X	x	x
5. Technical	x	X	-	X	-	-
6. Commitment	-	X	x	-	x	x
7. Organizing	-	X	x	x	x	x
8. Learning	-	x	x	-	x	-
9. Personal (strength)	-	x	x	x	x	-
10. Ethical	-	x	-	-	-	-
11. Social Responsibility	-	x	-	-	-	-
12. Familism	-	x	-	-	-	-

Source: Own elaboration

The most frequently identified competency domains in the studies enumerated in table 15 are strategic, conceptual, relationship and opportunity (at least 5 times), followed by commitment, personal and organizing (4 times) and finally technical and learning that were identified in three studies. It is worthy to note, though surprising, that the technical competency domain was not identified and validated

by Man T.Y. et al. (2002) in his studies conducted in Hong Kong SMEs. The decision to include the technical domain in this dissertation is based on the fact that it had been identified in later studies conducted in SMEs by Winterton, J & Winterton, R., (2002) in UK, Mohsin A., et al. (2017) in Malaysia as well as Ahmad, N.H. (2007) both in Australia and Malaysia simultaneously.

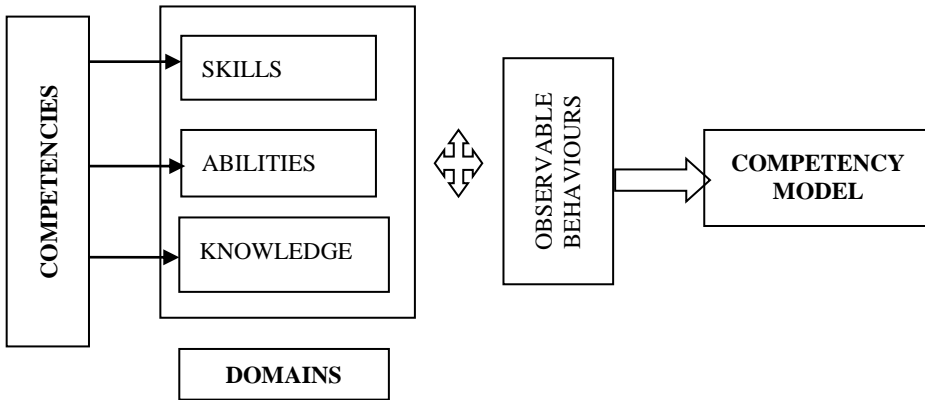
Designing a model

Although constituent elements of competences and hence related models may differ, they are generally constituted into knowledge, skills and attitude (ASK) domains (clusters). Thus, modern approaches to competency model designing have retained patterns in Bloom's (1956) ASK model, which has served as a reference in management studies. For instance, analysing and interpreting in Bartram's model can be likened to Bloom's "attitude", defined as the ability to receive and respond to phenomenon-related changes, including response to other people's behaviour (affection). "Skills", on the other hand, as a psychomotor domain is defined as the ability to apply and create, in similarity with creativity and conceptualizing, executing and performance domains in Bartram or the ICM model's productivity cluster category. Likewise, "knowledge" as the ability to explore and comprehend information, its analysis and application (cognitive domain) is likened to reasoning, visioning and know-how clusters (ICM model), as well as analysing and interpreting in Bartram's model. Models designed by Campbell (1997) and Jeffrey & Jon (2003) concerning leadership competencies also relied on ASK model (Quan, L. 2015). This is not an attempt to deny the existence of competency models with differing domain constituents, for example the OECD model (figure 5). What matters most is that such a model facilitates the goals and vision achievement of the organization, or unit for which it was designed.

Domains have, thus become the basic constituent/building elements competency models and often referred to as building blocks (US Dept. of Labour, Employment & Training Administration 2015). Design approaches for competency models existing in literature depict such models as consisting of the building blocks and their associated observable/ measurable behaviours as in figure 6.

Varied patterns of competency models exist both in literature and at company levels. Suffice to say, however, that they are based on the same building blocks of "abilities", "skills" and "knowledge". Competency models are also considered job/role, or industry specific and hence the proportionate mix (aggregation) of each domain's component parts and the expected observable behaviours should reflect the specificity of the job/position or industry. Competency models are adaptable due to the flexibility of their domain contents – an attribute which has given them the edge over traditional HR practices, especially in knowledge-based economies (PRAHRODH, 2017).

Figure 6. A concept for designing competency models



Source: Own illustration based on Ohimor, J. (2017). Owner/Manager Core Competencies in Enterprise Performance in SMEs – Selected Competency Models. Przedsiębiorstwo i Region, Prace Naukowe Uniwersytetu Rzeszowskiego nr 107, 23-37

Competency modelling approaches

Although lots of competency models prevail in literature, from academic to organizational set ups, they can be grouped, broadly, as core competency or generic models (Winterton, J. et al., 2006). The core competency approach to modelling had been dominant in the 1990s, culminating in Prahalad, C.K. and G. Hamel's (1990) core competencies of the organization. The post 1990s period, according to Winterton, J. et al. (2006), witnessed broader considerations of core competences to now include behavioural and psycho-social features. Later developments that viewed organizations from their perspective abilities to learn, adapt, change and renew during their lifespan (dynamic capability) have resulted in the inclusion of organizational meta-learning as a component of building blocks in competency models. Since generic approaches describe competences and skills for most jobs/ positions (transferability) in the work place the rest of the discussion concerning modelling will focus on such examples. A summary of various models based on the generic approach along with brief characterizations as well as strengths and weaknesses are presented in table 15.

An unavoidable observation from table 15 is that competency models, despite their reliance on the ASK model, do differ in their scope of focus. This corroborates with earlier arguments that competency model ought to be industry, sector or job/position specific, useful for attaining planned objectives in line with an organization's vision. Developments in empirical studies into competency models are evolutionary and tend to be favouring holistic approaches. The holistic perspective to competency models is based on the understanding that main constituting domains (cognitive/knowledge; operational/skills; attitudes and meta-competencies) do not exist/function in isolation. They are interlinked and exhibit

interdependencies. This resonates with R. Walkowiak’s (2007) synergistic characteristic of competences. Meta-competences, resulting from evolutionary studies, facilitate the functioning as well as the acquisition of other competences (Le Deist, F.D. & Winterton, J., 2005) necessary for effective performance of owner-managers, but not only. The holistic approach thus seems to embody the compensatory and complementary features of competences postulated by Boyatzis, R.E. et al. (2000).

Table 15. Generic approach-based competency models, descriptions, strengths and weaknesses

Competency Model – types	Model’s specific features	Model’s strength / weakness
<i>1</i>	<i>2</i>	<i>3</i>
Behavioural Model (Boyatzis, 2008; McClelland, 1998).	Work related behaviours seen as key drivers of performance. Examples: <i>achievement orientation; analytical thinking; conceptual thinking; developing others; flexibility; impact and influence; information seeking; initiative; interpersonal understanding; organisational awareness; self- confidence; and team leadership.</i>	Useful for predicting and evaluating manager’s performance. Fails to recognize job-related functional skills like knowledge, skills, abilities and attitudes (Le Deist et al., 2005).
Functional Model (Knasel & Meed, 1994).	Defines the competence and occupational standard for a real job position.	Focus only on position-related competences while ignoring knowledge abilities.
Job Competence Model (Mansfield & Mathews, 1985)	Competence consists of 3 elements: Task- skills for routine work for defined outcomes; Task management – skills needed to accomplish several task simultaneously; Job environment – skills needed to cope with critical work situations.	Indicates the existence of interaction between various parts. It fails, however, to specify skills needed for task management and job environment.
Holistic Model (Le Deist et al., 2005)	A fusion of behavioural, functional and job competency with other skills. Key components include: knowledge/cognitive, functional; personal/behavioural; values/ethical; and meta-competence components.	Includes ethics and professional values, making it more generic and holistic. Fails to mention the relationship or dependency existing between the competences.

1	2	3
Multi-dimensional Holistic Model (Le Deist et al., 2005)	Proposes 4 main components: cognitive, operational, social attitudes and meta competences. Argues that cognitive, operational and social competences are “a must have” for effective performance.	Emphasizes the role of the 4 skills but pays no attention to interpersonal and leadership skills.
Domain Model of Managerial Competencies (Hogan & Warrenfeltz, 2003)	All competences can be organized in 4 categories, i.e., intrapersonal, interpersonal, technical and leadership skills.	Fails to recognize career and mentoring skills, essential requirements for managerial efficiency.
Holistic-Domain Model of Managerial Competencies (Asumeng, M. A., 2014)	Consists of 6 domains: intrapersonal, interpersonal, leadership, technical, career and mentoring skills.	Indicates relationship between managerial competence and his or her effectiveness; a useful guide for practitioners in managerial evaluation.

Source: Own elaboration based on Asumeng, M. A. (2014). Managerial competency models: a critical review and proposed holistic-domain model. Journal of Management Research, 6(4), 1–20

Besides these, there are also the “single-job approachⁱ”, “one-size-fits-all approachⁱⁱⁱ”, and the “multi-job approachⁱⁱⁱ” (details at end of paper) (Mansfield, R.S., 1996). The major difference between the first two approaches is that while “single-job approach” is both person and position focused, the “one-size-fits-all” is applicable across various jobs and positions, irrespective of the person. Earlier studies by Ohimor, J. (2017) concluded that for enterprises operating in volatile and competitive environments the single-job approach seems more practical as continued employee development is paramount. Employee continued development efforts would enable the comparison of the quality of current in-company knowledge and other resources with future development needs – a step to enhance manager’s organizing and planning skills. It is important for owner-managers of SMEs to foresee and capture evolving opportunities as well as analyse and evaluate their suitability for the achievement of corporate goals. Firm-directed knowledge is only useful if well communicated to enable employees buy-in to the new ideas. A suitably designed and targeted competency model should enhance the process of transforming firm-directed inputs to valuable

ⁱ A model suitable for companies focusing on one job in their success drive. The descriptors of expected skills and behaviours are specified but common to all job positions. Though useful for training, it is time consuming and expensive.

ⁱⁱ It makes use of concepts to describe skills requirements though not as detailed as in the “single job” model. The requirements usually apply to a large number of employees.

ⁱⁱⁱ Useful in designing technical and knowledge requirements, cutting across several jobs. It, thus facilitates the comparison of skill requirements for various job positions, including their evaluations. It’s, however, difficult to communicate to staff due to its complexity.

outputs. The single-job approach is also simple and easily adaptable, thus making it suitable for micro and small firms, including family/entrepreneurial managed enterprises that usually lack the capacity and resources to engage in elaborate model designs.

Whatever the approach adopted, however, the guiding principle is that a competency model ought to identify key success factors that enhance organizational performance and should include measurable performance indicators.

The discussion undertaken in both sections of this chapter has shown that competency models, including their constituting competency elements serve useful purposes in organizational management. Although empirical studies in model/ domain competency constituents show variations, they are comparable and suitable for further studies and validation. Hence, eight domain areas including opportunity, relationship, conceptual, organizing, strategic, commitment, personal and learning (Man, T.Y. 2001; Man, T.Y. et al., 2008; Winterton, J. & Winterton, R., 2002; Mohsin, A. et al., 2017; Ahmad, N.H. 2007) have been adopted for the concerns of this dissertation. Short descriptions for each competency domain adopted for this study is included in table 16.

Table 16. Competency domains adopted for the study, brief description, and observable behaviours

Competency domain	Descriptions and observable behaviours
<i>1</i>	<i>2</i>
1. Relationship	Competencies related to person-to-person/ group-based interactions, e.g., building a context of cooperation and trust, using contacts and connections, persuasive ability, communication and interpersonal skill, promoting teamwork.
2. Strategic	Competencies related to setting, evaluating and implementing the strategies of the firm; priority of goal oriented work; determine company's strategic actions; impact ideas on others.
3. Conceptual	Competencies related to different conceptual abilities. Evaluation of new ideas; treatment of problems as opportunities e.g., decision skills, absorbing and understanding complex information, and risk-taking, and innovativeness
4. Commitment	Competencies that drive the entrepreneur to move ahead with the business; the urge to compete and succeed.
5. Opportunity	Competencies related to recognizing and developing market opportunities to provide benefits for customers. Captures opportunities.
6. Organizing & Leading	Competencies related to the organization of different internal and external human, physical, financial and technological resources, including team-building, leading employees, training, and controlling

<i>1</i>	<i>2</i>
7. Personal	Competencies concerning self-motivation, self-awareness, self-confidence, achievement orientation, persistence, determination and time management; identify strengths/weaknesses; manage own career development.
8. Learning	Connected with unrelenting drive for new information, willingness to use sources of learning, open to novel information; apply learned skills and knowledge at work.

Source: Own elaboration based on Man, T.W.Y., 2001; Man, T.W.Y., Lau, T. & Snape, E. 2008; Winterton, J. & Winterton, R. 2002; Mohsin, A. et al., 2017; Ahmad, N.H., 2007.

The conclusion of the analysis undertaken in this chapter resulted in the generation of a list of 40 competences to be included in the study. In order to avoid overlaps and repetitions and in attempts to have a manageable list, the author has selected a minimum of three and maximum of six competences for each domain, thus arriving at a list of forty, included in Appendix A8 (p. 211).

CHAPTER FOUR

SME owner-manager core competences – study concept

4.1. Research Methodology

4.1.1. Basic assumptions of the research

The object of the dissertation is to determine the competences of the owner-manager of an innovative SME in Podkarpacie Province. The review of global literature has revealed the existence of various models of core competences, for example, “Entrepreneurial Competences – ECs”, “Personal Entrepreneurial Competences – PECs” and “Female Entrepreneurial Competences”. Majority of such studies have emphasized the role of the entrepreneur, male or female, arguing that having entrepreneurs equipped with relevant skills and abilities can minimize negative impacts of external factors on SME’s performance. Mohsin, A. et al. (2017), on the other hand, have argued in favour of the role of the owner-manager’s competences in SME. This approach is justified as the SMEs are largely made up of micro and small enterprises (CSO/GUS, 2015) often run by their owners, who double as both the owner and manager.

The subject of the dissertation, in contrast, is the owner-manager of firms in the SME sector operating in Podkarpacie Province that have identified themselves as innovative (product/or services) and have, at a time, entered for the innovative enterprises contest titled “Podkarpacka Nagroda Gospodarcza” (Podkarpacie Economic Award) for 2015 (n=25), 2016 (n=29), 2017 (n=30) and 2018 (n=20). The decision to consider only these time periods was based on the viewpoint that some potential respondents (owner-managers) may not completely remember the circumstances relating to the issues being examined in the survey instrument.

The Podkarpacie Economic Award (Podkarpacka Nagroda Gospodarcza) has been in existence since 2001. It is an award to honour and promote the most active enterprises, engaging in innovative economic activities. The aim is also to encourage the business image of enterprises worthy of emulation by others, especially young entrants. For such enterprises, it is motivating for them to be listed as contestants for the most dynamic and best developing enterprises

in Podkarpacie province. The competition is co-sponsored by the Governor and the Marshal of Podkarpacie Province and the organizers – Centrum Promocji Biznesu.

4.1.2. Objectives and research hypotheses

The extensive literature review revealed, to the best knowledge of the author, the lack of studies identifying the core competences, hence a core competency profile of SMEs' owner-managers of innovative enterprises in Podkarpacie province. The research gaps observed in the literature study, for the needs of this dissertation (chapter one), were transformed into research questions.

Consequently, **the main objective** of the dissertation is to design a model of the core competences of owner-managers of innovative enterprises existing in Podkarpacie Province and to undertake analyses of the model in respect of the organization's features, the stage of innovation creation and the owner-manager's demographic characteristics. This main objective will be achieved by implementing the following **specific objectives**:

1. Undertake a qualitative and quantitative analyses of the owner-manager's core competences using various statistical tools of analysis.
2. Identify the owner-manager's competences desired for each phase of innovation creation and undertake its comparison with the owner-manager's core competences.
3. Propose a framework for designing core competency profiles for SME owner-managers of innovative enterprises.

In order to achieve the objectives of the dissertation, the methodological analyses of the research data will be guided by the following main as well as alternative research hypotheses:

Main hypothesis:

H₀: There exists a set of key competences of the owner-manager of an innovative SME.

Due to the fact that owner-manager's work and in consequence his/her competence requirements can be influenced by their characteristic features as well as organizational specifics the hypothesis is analysed along two pathways, namely regarding owner-manager characteristic features and organizational factors. Hence, two sub-hypotheses will be presented and later discussed.

H₁: There is no statistically significant difference in the set of key competences regarding the owner-manager's demographic features.

Supporting hypotheses to be tested include the following:

H₁₁: There is statistically significant difference in the set of key competences of the owner-manager due to gender.

- H₁₂:** There is statistically significant difference in the set of key competences of the owner-manager due to his/her age.
- H₁₃:** There is statistically significant difference in the set of key competences of the owner-manager due to his/her level of education.

It is argued in subject literature that enterprises innovativeness is influenced or constrained by several factors, internal and external (Romanowska, M. 2016) and that an SME's ability to accomplish its innovative strategies relies on the owner-manager's ability to seek and capture relevant knowledge (competences) to enable it deal with business uncertainties (Błaszczuk, D. 2013; Sopińska, A. & Wachowiak, P. 2016). Indeed, the direct link between competence development and enterprise size was highlighted in the "Competence Development in SMEs: Observatory of European SMEs, ..." (2003). It can, hence be argued that enterprise features like size, scope of activity, type of innovation and line of business may impact on the types and structure of competences needed to deal with such issues (Bombiak, E. 2014). Hence, the author deems it necessary to research the impact of such factors on owner-manager's type and structure of competences needed to accomplish enterprise objectives. Consequently, alternative hypothesis H₂ is assumed as follows:

H₂: There is no statistically significant difference in the set of owner-manager's key competences regarding the organization's characteristic features.

The following supportive hypotheses will also be tested.

- H₂₁:** There is statistically significant difference in the set of key competences of the owner-manager regarding the type of innovation.
- H₂₂:** There is statistically significant difference in the set of key competences of the owner-manager regarding the scope of business activity.
- H₂₃:** There is statistically significant difference in the set of key competences of the owner-manager regarding the line of business.
- H₂₄:** There is statistically significant difference in the set of key competences of the owner-manager regarding the size of the enterprise.

Research Methods / Analyses of dependences

The core competences of SME owner-managers in Podkarpacie province, Poland had never been studied comprehensively (see literature review), hence divergent findings can contribute to a better comprehension of the subject matter to the benefit of both practitioners and academics. The objectives of the study will be accomplished applying the following research methods in the dissertation namely, critical literature analysis, the Expert's opinion (Delphi) method using a 5-point Likert scale, and a questionnaire survey of owner-managers of select SMEs in Podkarpacie province.

The empirical material for the research constitute primary (source) data obtained from enterprises covered by a quantitative survey, using a questionnaire. The collected statistical material included a sample of 80 respondents (qualified returns). The survey questions were partly quantitative when respondents rated managerial competencies or other aspects (scores from 1 to 6, from 1 to 12, from 1 to 4). The statistical material also covers qualitative aspects. Qualitative data is usually characterized by dichotomous variables (0,1), the validity of its findings needs to be established. The combination of both quantitative and qualitative methods of research calls for in-depth analyses. To achieve this the triangulation research method will be applied. Since each of the two methods have their weaknesses, triangulation can help to increase confidence in the findings, hence their validation, comparing them from various view-points (Heale, R. & Forbes, D. 2013).

In order to test the differences and relationships between traits, two nonparametric test will be carried out, namely the Pearson Chi-square test of independence (for qualitative traits) and the Kruskal-Wallis ANOVA test (for testing relationships or differences between quantitative and qualitative traits).

The analysis includes a numerical and percentage comparison as well as the results of the Kruskal Wallis ANOVA test and the Pearson chi-square test of independence, which allow one to assess whether the relationship or differences between selected features are statistically significant. A significance level of $\alpha = 0.05$ was adopted for the study. It is assumed that: when $p < 0.05$, there is a statistically significant relationship (marked with *); $p < 0.01$, there is a highly significant relationship (**); $p < 0.001$, there is a very high statistically significant relationship (***).

The Chi – square (Pearson) independence test is used to compare two or more groups. The observations are summarized in a multi-division table. The main hypothesis that is subject to verification concerns the lack of relationship between the examined features. If it turns out that $H_0 = 0$, then the independence should be rejected in favor of the alternative hypothesis, i.e., that there is probably a statistically significant relationship between the examined features. Based on survey data, the so-called test of probability (computerized significance level) is calculated. If $p > \alpha$ then there are no grounds to reject the main hypothesis. If $p < \alpha$, the main hypothesis about the independence of the examined features should be rejected in favor of the alternative hypothesis.

The Kruskal-Wallis ANOVA test is a nonparametric equivalent of a one-way analysis of variance. This test checks if “n” independent samples are from the same population or from a population with the same median. Individual samples do not have to have the same number. A maximum of 10 groups can be compared. The main hypothesis (H_0) speaks of the equality of the cumulative distribution function in compared populations, i.e. that there are no differences or relationships between the studied variables.

One-way analysis of variance will also be used. The analysis of variance (ANOVA) for a single classification examines the effect of one classifying factor (divided into many levels) on the values of the measurable characteristic tested. The purpose of the analysis of variance is to answer the question whether the values of the examined feature reflect the influence of factors or are independent of them. The main hypothesis (H_0) in the analysis of variance indicates that the means in the compared groups (populations) are equal. This is equivalent to the assertion of the lack of influence of the independent variable on the dependent variable.

The Delphi method (Skulmoski, G. et al. 2007), applied in this study is a simplified version often referred to as experts' opinion, of research with a 5-point Likert scale. It is a method that allows for anonymous assessment of experts, using a questionnaire as well as consultations to clarify aspects of responses or quality of question types. It thus enhances improved knowledge concerning the object of research, especially in situations of great multiplicity of opinions as it is the case with competency constituents.

4.1.3. Organization of the research process

A significant factor for consideration in the design and application of the questionnaires is the language. The dissertation is to be prepared in English language whereas the intended respondents, both for the preliminary and main survey, are native Polish language speakers. The questionnaire was translated into Polish using the extended parallel translation procedure known as collaborative translation. The technique involves checking if the equivalence in meaning and the intended sense of statement was appropriately captured (Mohsin A. et al. 2017). For the purpose of this dissertation the original questionnaire was translated into Polish language by a Polish teacher of management studies and then re-translated by a Polish-English translator and checked by a native-speaker of English for conformity with intended sense of the questions. The necessity of a Polish teacher of management studies was to ensure that the business connotation of given expressions was taken care of and not just the linguistic meanings.

A research methodology/procedure is accepted as the systematic approach to resolving a research problem. The suitability of a well-laid research procedure enhances its replicability and use in future researches, especially in comparative studies. The series of steps and actions taken to effectively implement and accomplish the objectives of this dissertation are illustrated in figure 7.

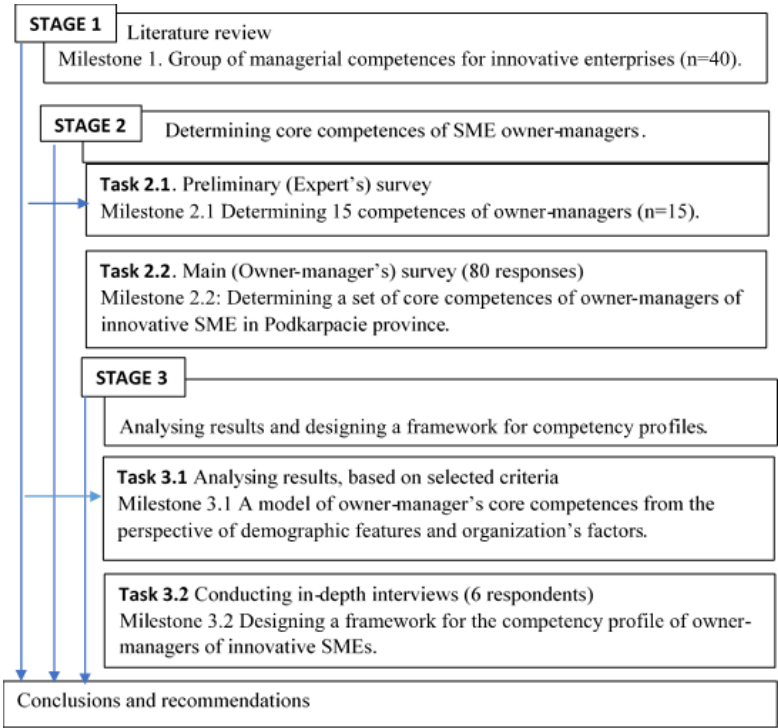
The accomplishment of all the activities, with the aim of attaining the objectives of the dissertation will comply with the following stages:

STAGE 1. This began with a systematic review of current subject literature both in nationally and internationally recognized scientific sources, including institutional repositories with the aim of identifying key competences and their classifications to be used in the dissertation. An unavoidable observation in the

literature review was the number of competences that is inconclusive, inconsistent and often overlapping (Ohimor, J. 2017), hence the desire of the author to choose a manageable size of competences. Care was, however, taken to make sure that the eight competency domains identified in chapter 3.2.2 namely, Opportunity, Relationship, Conceptual, Organizing, Strategic, Commitment, Learning and Personal are represented in the primary list (n=40).

A major milestone of this stage was the generation of a group of competences (n=40) needed for the next stage, namely preliminary survey to seek experts' opinion.

Figure 7. A graphic representation of the research plan



Source: Own elaboration

STAGE 2. The goal of this stage is to identify the core competences of SME's owner-managers from Podkarpacie province. This will be accomplished over two levels of questionnaire administration and testing.

The first of these levels is the application of the preliminary survey, consisting of the group of (n=40) competences for their evaluation, using the Experts' opinion (Delphi) method as a tool. The Delphi method was chosen for the current study due to the lack of complete knowledge concerning managerial competences due to factors mentioned in chapter 3.2.2. The Experts' opinion is a simplified

version of the Delphi method that accepts a one round of questioning instead of the multiple rounds in the classical Delphi methodology. It is also suitable for use in qualitative as well as in quantitative researches.

A milestone of this stage is the identification of (n=15) competences of innovative SME owner-managers from Podkarpacie province.

The second of two levels of testing involves the application of the main survey amongst owner-managers of innovative SMEs. The aim is to seek the opinion of SMEs owner-managers regarding managerial competences for innovative activities. The research tool will be a questionnaire, consisting of the (n=15) competences identified in level one above, designed, based on the question types in the experts' survey (Appendix B1, p. 216-218).

The milestone of this level is the emergence of a set of core competences of the owner-manager of innovative SME in Podkarpacie province.

STAGE 3. This stage will involve analysing the research findings as well as designing a framework of competency model of SME owner-managers in Podkarpacie province. The first part of this stage is analysing the research findings, based on the criteria of objectives adopted in the research methodology. The criteria for consideration include the impacts of the owner-manager's gender, age and level of education as well as the type of business activity, area of innovation, size of the enterprise and the scope of the business activity. The responses of the owner-managers regarding competences viewed as relevant for each stage of innovation creation will also be analysed in this part of stage 3. The stage will be concluded with the designing of a general model of core competences of the owner-manager of an innovative SME functioning in Podkarpacie province.

The second part of this stage (3.2), involves conducting additional research activity to verify and complement the research data. This will be achieved by conducting direct interviews, using personal or telephone interview as the research tool. The outcomes of this additional research activity is to augment the designing of the framework of the competency model of SME owner-managers in Podkarpacie province.

A final step of the research procedure is discussing the findings, verifying the hypotheses and preparing conclusions for the dissertation as well as recommendation for future studies.

4.2. The Research Sample and Process

Selecting the target research sample

Sampling is a method of selecting a subset of potential respondents (owner-managers of innovative enterprises) from within a defined population to capture the characteristics of the entire population (owner-managers of SMEs in Podkarpacie province). The simple random sampling applied for this study has

been described in literature as an unbiased surveying technique, (McLeod, S. 2014; Igwenagu, C. 2016).

4.2.1. The preliminary survey (experts' opinion)

Having obtained a list of 40 competences (Appendix A9, p. 212–213) reflecting the eight competency domains (chapter 3.2.2), the author wished to reduce this to a more manageable number of competences to be included in the main survey. Experts' (Delphi) opinion was sought to know which competences are most commonly identified with owner-manager's position (function) and roles in a micro and small enterprise engaged in innovative practices. The aim was also to enhance improved knowledge concerning the object of the research, especially in situations of very diversified opinions on the topic of competency types. Moreover, preliminary surveys might reveal difficulties and short-comings of the questionnaire to be administered.

Having decided on the background of the experts, a self-designed questionnaire was emailed to them between April and May 2018.

The deliberate sampling method was applied to the sample group of experts made up of 25 persons in total, with 5 each from the following professional groups:

- academicians,
- entrepreneurs,
- organizers of the innovation contest mentioned earlier (4.1),
- innovation auditors, and
- teachers of vocational courses.

The aim was to guarantee that survey experts are grounded in their knowledge of the subject matter, practically and theoretically and that sizeable returns were obtained. The questionnaire consisted of five open-ended questions, out of which the following were designated for the dissertation:

- A. Owner-manager's competences and innovation creation – PQ1.
- B. Domain groups of owner manager's competences relative to the enterprise's line of business (production or services) – PQ4.
- C. Organization's internal factors in innovation creation – PQ5

In addition, the questionnaire was supplemented with the following respondents' metrics: education, age, gender, as well as the occupational sector represented.

The main achievement of this stage of the research study is to obtain a list of 15 competences, on which the main questionnaire survey of owner-managers is to be based.

4.2.2. The Main (Owner-manager of SME) survey-questionnaire

For the purpose of this dissertation, the key respondents of the questionnaire are defined owner-managers of micro, small and medium-scaled enterprises, employing between 3 and 249 people, defined as persons, male/female who sets up an enterprise

and is actively participating in its management. The owner-manager may also be referred to as the director, managing director or an entrepreneur as the case in Poland.

The targeted respondents are owner-managers of 104 enterprises delineated in section 4.1. The list of potential respondents was generated, based on materials published on the official website of Centrum Promocji Biznesu, organizers of the annual “Podkarpacka Nagroda Gospodarcza” (Podkarpacie Economic Award). The questionnaire (Appendix B1, p. 216–218) is administered following a two-pronged approach, namely via direct delivery by the researcher’s agent or by emails. The questionnaire consists of open-ended question types with opportunities for respondents to provide more than one answer (multiple choice). Part two of the questionnaire relates to the respondent’s metrics, useful indicators to enable in-depth analysis of the responses to achieve the key objective(s) of the dissertation. The questionnaire consisted of nine open-ended questions. However, the following question types were adopted for consideration to meet the objectives of the dissertation:

1. Owner-manager’s competences for innovation development – MQ1, MQ3.
2. Competences and stages of innovation creation – MQ7.
3. Impact of the enterprise’s internal and its organizational factors on innovation – MQ4, MQ5, MQ6.

4.2.3. An interview-survey of selected owner-managers

Having identified the core competences of owner-managers of innovative SMEs in Podkarpacie province, following the quantitative and qualitative analyses the author intends to carry out interviews to enable in-depth knowledge of the objects of the research study and provide evidence of validity for the owner-manager’s identified competences. The targeted group, randomly selected from the list of owner-managers, respondents in the main survey is expected to consist of 6 persons, three males and females each.

The qualitative data is to be collected through interviews with questions relating to the already determined core competences of owner-managers. It also aimed to seek clearance, if any, regarding discrepancies in their choice of competences and popular views held in subject literature. A major achievement of this stage is the additional, directly sourced, useful material for designing a framework of core competences of owner-managers of innovative SMEs. The question types, covering two aspects, are intended to help in achieving the following aims:

1. To identify most relevant elements (activities areas) that constitute a given type of owner-manager competence from within the 8 core competences delineated by owner-managers of innovative SMEs.
2. Creativity was not a popular choice as a core competence of owner-managers of innovative SME by respondents. What could have contributed to this? / What in their opinion could be possible reasons for this?

The outcomes of all three levels of analysis are presented in chapter five of the dissertation.

CHAPTER FIVE

Owner-manager core competences – research results presentation

5.1. Owner-Manager Competences: Research Tools and Results

5.1.1. A select of competences of owner-manager of innovative SMEs – Experts’ opinion

The research instrument to survey the expert’s opinion regarding competences they consider more appropriate and relevant for owner-managers to undertake innovative activities was a questionnaire, which was administered between April and May 2018. The respondents, 21 in all, represented HR experts (1), Academic/ R&D centers (2), Innovation evaluation institutions (3), technical/ vocational education (4) as well as practitioners (5). Table 17 illustrates the main demographic data for the respondents.

Table 17. A summary of the demographic data – experts’ survey

Demographic data – Experts’ survey						
Details	Male			Female		
Total	7			14		
	Respondent’s age categories (M/F)					
	<30	30-45	>45	<30	30-45	>45
Total	1	3	3	1	7	6
	Years of employment (numbers)					
	<10		11-20	21-30		>30
Total	8		4	6		3

Source: Own elaboration based on research findings

The data show that 33% of the respondents were males in contrast to 67% of females. Over 90% of the overall respondents were over 30 years of age with the 30–45 year-olds constituting the majority (48%). While about a third

of the respondents have less than 10 years working experience, almost 50% could boast of over 20 years working experience.

The suitability of the returned questionnaires was ascertained and subsequently coded before being entered into Excel spreadsheet to create a database ready for the necessary statistical analysis, using STATISTICA 13.5 software and evaluation. The statistical analytical tests applied in the analysis included the standard deviation, coefficient of variation as well as the mean. Their application enabled the determination of frequencies of occurrence and hierarchy of the features. The consolidated list of owner-manager's competences, thus generated as findings of the experts' survey is provided (Appendix A9, p. 212–213). The selection model applied to the experts' evaluation, to delineate the competences for the next stage of the study is presented next.

Two criteria were applied to determine the most significant owner-manager competences for creating innovations in SMEs. These include achieving the highest attainable mode value ($Mo=5.0$) and a mean value not lower than $\alpha=4.10$. Competences numbers 12 (identifying opportunities) and 14 (developing identified opportunities) were found to be too close to justify their separation, and they were, based on the experts' advice, merged. Analytical thinking skills (position 15) was, thus included in the list of competences for the main survey. An achievement of this stage is the generation of a list of owner-manager's competences ($n=15$) (table 18) which were assigned codes (MC – managerial competences).

Table 18. List of competences according to experts with corresponding codes

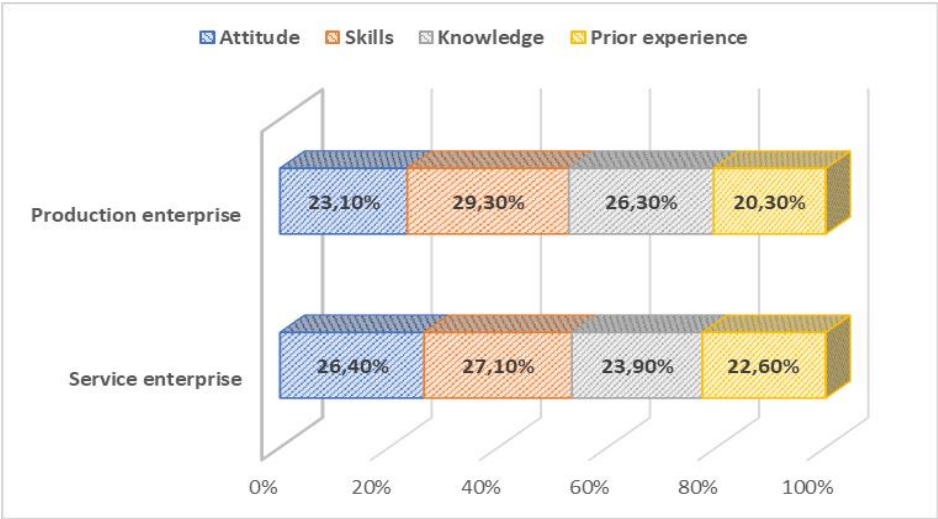
Owner-managerial competences for innovation by experts						
Code	Competences	Average (\bar{x})	Median (\tilde{x})	Mode Mo	S.D (σ)	C.V.
MC1	Decision-making skills	4.60	5.00	5.00	0.50	10.93
MC2	Identifying market needs	4.55	5.00	5.00	0.69	15.08
MC3	Strategic skills	4.45	5.00	5.00	0.69	15.42
MC4	Setting goals	4.40	4.50	5.00	0.68	15.47
MC5	Creativity	4.35	4.00	5.00	0.67	15.42
MC6	Leadership	4.15	4.00	5.00	0.81	19.58
MC7	Coping with stress	4.00	4.00	5.00	1.03	25.65
MC8	Identifying risk levels	4.30	4.00	4.00	0.73	17.04
MC9	Knowledge application skills	4.25	4.00	4.00	0.55	12.94
MC10	Adaptability	4.25	4.00	4.00	0.64	15.03
MC11	Perseverance	4.20	4.00	4.00	0.70	16.57
MC12	Identifying opportunities	4.15	4.00	4.00	0.59	14.15
MC13	Motivating	4.10	4.00	4.00	0.91	22.24
MC14	Analytical thinking skills	4.10	4.00	4.00	0.97	23.61
MC15	Communicating skills	4.10	4.00	4.00	0.72	17.52

Source: Own elaboration based on expert's survey findings

Having checked that the select list of fifteen owner-manager competences fulfilled the criteria, they were then applied to construct the main survey instrument, a questionnaire.

The literature review undertaken for this study indicated that competences can be classified according to domains or clusters. Hence, the opinion of the experts was also sought to seek which of such domains are identifiable in their selected list of competences. They were also asked to determine if there existed any identifiable differences between domain constituents of owner-managers' core competences relative to their lines of business activity: product and services (figure 8). The experts agreed that the possession of competences in the skills (29.3%) and knowledge (26.3%) domains are crucial for production activities, compared with skills (27.1%) and attitude (26.4%) for services activities.

Figure 8. Competence structure of the owner-manager of innovative production and services enterprises



Source: Own elaboration based on findings of the experts' survey

However, since the differences in competency domains between both types of enterprises range between 3.3% and 2.2%, which is considered minimal, the author thus concludes that both domain patterns are similar.

In order to fully appreciate the role of owner-managers of SMEs, the author investigated the relevancy of the enterprise's internal factors in its engagements. The findings of the experts, regarding the issue are summarized in table 19. In the experts' opinion, the enterprise's ownership style, its size, location, are essential to its engagement in innovation. As much as 70% of the responding experts held the notion that the owner-manager's level of education, experience and participation in trainings (learning) are vital factors contributing to SME's

innovativeness. Contrastingly, however, the experts were convinced that both the owner-manager’s age and gender were not very essential in encouraging innovation drives. Three-quarters of the responding experts held this viewpoint.

Table 19. Relevance of enterprise’s internal factors for innovation – Expert’s opinion

Indications for the relevancy of internal factors for innovation activities				
Details	Irrelevant (1)	Less Relevant (2)	Moderately Relevant (3)	Very Relevant (4)
Company ownership type	-	-	10	4
Company size	-	-	8	6
Company’s location	-	-	9	5
Duration of existence (years)	-	-	6	4
Owner-manager’s gender	14	5	3	-
Age of owner-manager	11	6	4	4
Owner-manager’s level of education	-	-	10	6
Owner-manager’s experience	-	-	-	18
Owner-manager’s participation in trainings	-	-	5	13

Source: Own elaboration based on findings of the expert’s survey

Overall, the conclusion that can be drawn from the preliminary study was that despite the expert’s opinion regarding the **insignificant roles of gender, owner-manager’s age in innovation creation, they confirm the existence of owner-manager’s competences relevant for innovation drives and that the structural distribution of competency domains varies** between lines of business activities, production and services, of SMEs.

5.2. Structure of owner-manager’s competences for innovative SME- analysis

The next stage was investigating the owner-managers’ opinions regarding the competences obtained from the expert’s survey to identify the competences suitable for innovation. A questionnaire (Appendix B1, p. 216–218) was designed and administered in pursuance of this goal. The survey was conducted by reaching the potential respondents via emails, following a telephone call as well as through direct contacts between November 2018 and July 2019. The analysis of the data obtained and its findings are presented in the following paragraphs. The quantitative analysis was in respect of the respondent’s demographic features, the organization’s characteristic features as well as the stages of innovation creation.

The first part of the analysis was in respect of the owner-manager’s gender, age and level of education attained. The results of the analysis are summarized in table 20.

Table 20. A summary of respondents’ demographic features

Number of respondents by gender						
	Male (M)			Female (F)		
	48			32		
Age of respondents according to gender in numbers						
	<30	30–45	>45	<30	30–45	>45
	2	19	27	7	22	3
Level of education of respondents by age in numbers						
Details	Total		<30	30–45	>45	
	M	F				
Secondary	5	6	3	3	5	
Secondary-technical	16	8	3	13	8	
Higher/tertiary	27	18	3	25	17	

Source: Own elaboration based on research findings

Overall, 60% of owner-managers were males, while the females constituted 40%. Majority of the respondents were over 30 years of age – 40% of the males were aged 30–45 years, while 56% were over 45 years old. The corresponding numbers for females were 69% for 30–45 years of age and 9% for the over 45–year olds. Only 4% of male respondents were under 30 years of age in contrast to 22% in the case of female respondents.

Majority of the respondents, male and female, were persons with higher/ tertiary educational qualification (56%), in contrast to the less than 20% holders of secondary school qualification without technical background. Majority of those, (male/ female), with tertiary education fall within the 30–45 age category (61%) and over 45-year olds (57%). A mere 7% of the respondents, aged 30–45 were with secondary education.

The next step in the analysis was in respect of the organization’s characteristics (table 21). The first of such characteristics is the owner-manager’s line of business activity which revealed that as much as 59% of females and 42% of males are engaged in services related business. The proportional representation was reversed in respect of production where female owner-managers constituted 41% in contrast to males with 58% involvement. While a majority of the under 30s (89%) is engaged in service businesses, the over 30s were distributed fairly evenly across services and production lines of business. The findings do seem to suggest that engaging in production type of businesses does require years of experience.

Table 21. A summary of organizational characteristics by age of respondents

Number of respondents by gender					
	Male (M)			Female (F)	
	48			32	
Line of business activity of respondents by age (nos.)					
Details	Total		<30	30-45	>45
	M	F			
Services	20	19	8	17	14
Production	28	13	1	24	16
Scope of the business activity of respondents by age (nos.)					
Local	8	7	6	9	0
Nation-wide	17	21	2	25	11
International	23	4	1	7	19
Type of innovation activity of respondents by age (nos.)					
Product	21	7	2	10	16
Service	16	23	5	24	10
Marketing	9	0	1	5	3
Organizational	2	2	1	2	1
Size of enterprise owned by respondents by age (nos.)					
Micro	0	14	2	10	2
Small	19	14	6	23	4
Medium	29	4	1	8	24

Source: Own elaboration based on research findings

The analysis also aimed to determine if the owner-managers concentrated their business to certain markets to the detriment of others or they had their businesses spread across all three markets researched. The data from the main survey revealed that female respondents were more concerned with running businesses at local (22%) and national (66%) levels in contrast to males that were mainly in national (35%) and international (48%) markets. The local market appears to be the domain of the under 30s (67%) in contrast to over 60% of the over 45-year olds in international markets.

The level of education does seem to influence the scope of business engagement. For example, while a rather comparable spread of the three levels of education, namely secondary (45%), secondary-technical (42%) and tertiary (51%) can be observed in respect of enterprises engaged in business nationally, the same cannot be said in respect of local or international markets. The data indicate that less than a quarter of owner-managers with secondary-technical or higher education get involved in doing business locally in contrast to the

situation in international engagement where every third player (33%) holds a minimum of secondary-technical qualification.

The analysis also revealed that the enterprises covered by the study were fairly spread across production (51%) and services (49%) line of business activities (table 22).

Table 22. Enterprise line of business in numbers vs its size and scope of business

Number of service & production enterprises		
Details	Services (Total)	Production (Total)
Scope of business activity	39	41
Local	11	4
Nation-wide	18	20
International	10	17
Size of enterprise	39	41
Micro	11	3
Small-scaled	14	19
Medium-scaled	14	19

Source: Own elaboration based on research findings

While majority of the service-oriented enterprises concentrate their businesses within the national market (46%), their production-oriented counterparts are spread between national (49%) and international (41%) markets. Almost all micro enterprises, service and market-oriented enterprises, limit their business activities to the local market. In contrast, almost all enterprises engaged in both national and international markets are either small or medium-scaled.

The dissertation is about owner-managers engaged in innovation in SMEs. It is therefore pertinent to find out what the emerging data indicate regarding the type of innovation activity followed by respondents. The overall data showed that 28 of the respondents (35%) are into product innovation, while almost 39 of them (50%) are involved in service innovation (table 22). The number of owner-managers in marketing (11.3%) as well as organizational (5.0%) innovation is limited. Marketing and organizational innovations do not seem to be favoured by SME owner-managers in Podkarpacie.

The findings of the analysis showed that female owner-managers are decisively (72%) more involved in service innovation as only 22% of them are into product innovation. This is more than double the percentage of male owner-managers engaged in service innovation (33%). About half of the male owner-managers (44%) are into product innovation. It is observed that almost 60% of those engaged in service innovation are under 30 years of age or in their 30–45s. Contrastingly, over half (53%) of those in product innovation are over 45 years of age. The findings also revealed that service innovation was

preferred by owner-managers, holders of secondary (55%) and secondary-technical (63%) qualifications. It is worthy of note, however, that as much as 40% of respondents with tertiary levels of education declared their involvement both in service and product innovations.

The size of enterprise owned and managed by respondents was also researched. The overall data (table 22) indicate that 33 (41.3%) of the respondents own and manage small or medium enterprises, while only 14 (17.5%) run micro enterprises. The findings showed that male respondents can be found as owner-managers of small (40%) and medium-sized (60%) enterprises. Female respondents, in contrast, were spread equally in both micro and small enterprises (44%). While 67% and 56% of owner-managers of small SMEs are in the under 30 and 30–45 age brackets respectively, as much as 80% of owner-managers of medium-sized SMEs are over 45 years old.

It is observed that less than 20% of micro enterprise owner-managers can boast of secondary-technical or higher education. In contrast, 50% (small-sized SMEs) and 42% (medium-sized SMEs) owner-managers are declared holders of secondary-technical qualifications. It is worthy of note, likewise, that at least every third owner-manager of small and medium-sized SME holds a tertiary qualification. Table 21 provides details of the quantitative analysis regarding owner-manager's demographic as well as the organization's characteristic features.

The qualitative analysis of owner-manager's demographic data and eventual dependences, using the Chi-square test of independence ($\alpha = 0.05$) revealed that owner-manager engagement in innovative activities is moderately influenced by the scope of business activity $p < \alpha$ ($p = 0.00388$), type of innovation activity $p < \alpha$ ($p = 0.00215$), while being strongly influenced by the size of enterprise $p < \alpha$ ($p = 0.0000$) as well as his/her age $p < \alpha$ ($p = 0.0005$). Similarly, while the respondent's age influenced the choice of line of business $p < \alpha$ ($p = 0.0361$), it had very strong impacts on the scope of business activity $p < \alpha$ ($p = 0.0000$) as well as on the enterprise size $p < \alpha$ ($p = 0.0000$). Although the respondent's level of education might have had some influence on the organization's factors, the impacts were non-significant ($p > \alpha$) (table 23).

5.2.1. Owner-manager competences for innovative SME

The objectives and assumptions for the dissertation were expatiated in chapter 4.1. In pursuant of this, the data from the main survey was subjected to a qualitative analysis, using descriptive statistical methods and dependency tests. The aim of the qualitative analysis undertaken in this section was to test the validity of the main hypothesis proposed for this dissertation, namely:

H₀: There exists a set of key competences of the owner-manager of an innovative SME.

Table 23. Respondents' metrics by gender

	According to gender of respondents (%)		Chi-square Independence Test	According to respondents' age (%)			Chi-square Independence Test	According to respondents' level of education (%)			Chi-square Independence Test	
	Male (60%)	Female (40%)	$\alpha=0.05$	<30 years	30-45 years	>45 years	$\alpha=0.05$	Secondary	Secondary -technical	Higher /tertiary	$\alpha=0.05$	
	1	2		3	4	5		6	7	8		9
											11	
Age (years)												
< 30	4%	22%	0.00005***									
30-45	40%	69%										
> 45	56%	9%										
Education level												
Secondary	10%	19%	0.49309	33%	7%	17%	0.27540					
Secondary technical	33%	25%		33%	32%	27%						
Higher / tertiary	56%	56%		33%	61%	57%						
Line of business activity												
Services	42%	59%	0.12057	89%	41%	47%	0.03461*	64%	42%	49%	0.48240	
Production	58%	41%		11%	59%	53%		36%	58%	51%		
Scope of business activity												
Local	17%	22%	0.00388**	67%	22%	0%	0.0000***	27%	25%	13%	0.71427	
Nation-wide	35%	66%		22%	61%	37%		45%	42%	51%		
International	48%	13%		11%	17%	63%		27%	33%	36%		

	1	2	3	4	5	6	7	8	9	10	11
Area of innovation activity											
Product	44%	22%	0.00215**	22%	24%	53%	0.24646	36%	25%	40%	0.43254
Service	33%	72%		56%	59%	33%		55%	63%	40%	
Marketing	19%	0%		19%	12%	10%		9%	13%	11%	
Organizational	4%	5%		11%	5%	3%		0%	0%	9%	
Size of Enterprise											
Micro	0%	44%	0.00000***	22%	24%	7%	0.0000***	36%	8%	18%	0.32343
Small	40%	44%		67%	56%	13%		36%	50%	38%	
Medium	60%	12%		11%	20%	80%		28%	42%	34%	

Source: Own elaboration based on main survey findings

Table 24. Mean scores and values for standard deviation for owner-manager competences regarding demographic features

	General			Gender			Age						Level of Education						min	max
	\bar{X}	σ	\bar{X}	Male		Female	<30 years	30–45 years		>40 years	Secondary		Higher/tertiary							
				\bar{X}	σ			\bar{X}	σ		\bar{X}	σ	\bar{X}	σ						
															2	3	4	5		
Identifying risk levels	1,58	2,19	1,52	2,03	1,66	2,43	1,44	2,40	1,24	2,03	2,07	2,30	1,64	2,80	1,75	2,23	1,47	2,04	1,24	2,80
Decision-making	2,48	2,44	2,63	2,46	2,25	2,42	2,89	2,37	2,27	2,35	2,63	2,63	1,09	1,92	1,63	2,26	3,27	2,38	1,09	3,27
Creativity	1,06	1,94	1,25	2,09	0,78	1,68	1,22	1,99	0,76	1,67	1,43	2,24	0,36	1,21	0,83	1,74	1,36	2,14	0,36	2,24
Strategic skills	1,63	2,25	1,25	2,03	2,19	2,48	2,67	2,60	1,37	2,02	1,67	2,43	2,45	2,66	1,04	1,92	1,73	2,28	1,04	2,67
Setting goals	2,05	2,52	1,92	2,45	2,25	2,65	1,89	2,85	2,17	2,55	1,93	2,46	2,64	3,04	1,79	2,28	2,04	2,54	1,79	3,04
Leadership	2,65	2,55	2,73	2,59	2,53	2,53	1,67	1,41	3,00	2,76	2,47	2,49	2,73	2,72	2,54	2,65	2,69	2,51	1,41	3,00
Motivating	1,79	2,29	2,00	2,34	1,47	2,20	1,78	2,68	1,54	2,23	2,13	2,29	1,55	2,25	1,75	2,36	1,87	2,30	1,47	2,68
Identifying opportunities	0,80	1,71	0,60	1,41	1,09	2,07	0,00	0,00	1,27	2,06	0,40	1,19	0,64	1,80	1,38	2,20	0,53	1,31	0,00	2,20
Identifying market needs	1,55	2,30	1,50	2,24	1,63	2,42	2,44	2,74	1,41	2,27	1,47	2,22	1,64	2,80	1,79	2,26	1,40	2,23	1,40	2,80
Perseverance	0,98	1,65	1,04	1,71	0,88	1,58	1,22	1,64	0,88	1,65	1,03	1,71	1,73	2,00	1,13	1,60	0,71	1,56	0,71	2,00
Coping with stress	1,33	1,95	1,17	1,73	1,56	2,24	0,89	1,36	1,56	2,16	1,13	1,80	0,91	2,07	1,58	1,74	1,29	2,04	0,89	2,24
Analytical thinking	1,71	2,11	1,69	2,17	1,75	2,03	1,67	1,80	2,02	2,33	1,30	1,84	2,36	2,06	1,58	2,28	1,62	2,04	1,30	2,36
Communicating skills	1,30	1,61	1,13	1,38	1,56	1,90	0,78	1,09	1,46	1,75	1,23	1,55	2,00	1,79	1,25	1,54	1,16	1,59	0,78	2,00
Knowledge application skills	0,76	1,35	0,56	1,11	1,06	1,63	0,44	1,01	1,07	1,49	0,43	1,17	1,18	1,83	0,96	1,46	0,56	1,14	0,43	1,83
Adaptability	0,35	1,02	0,44	0,99	0,22	1,07	0,00	0,00	0,20	0,56	0,67	1,49	0,82	1,78	0,21	0,72	0,31	0,90	0,00	1,78

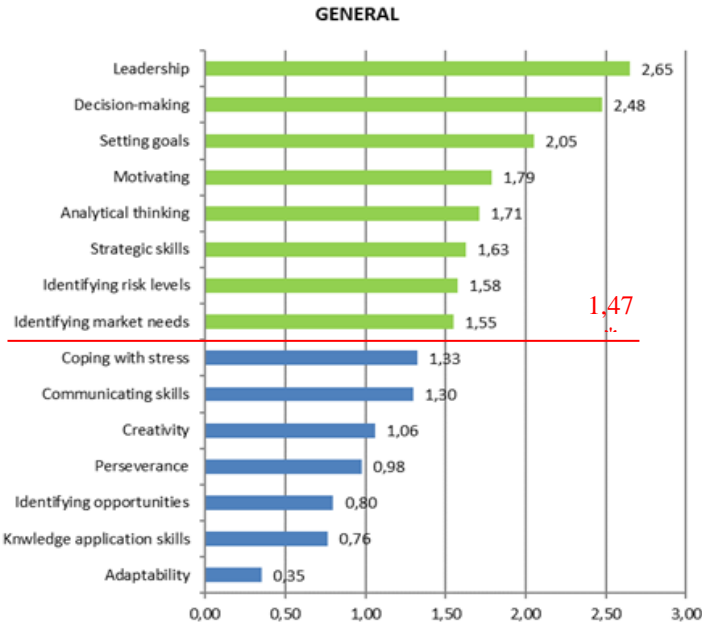
σ – standard deviation; x-bar – sample mean,

Source: Own elaboration based on research findings.

To achieve this objective, statistical tally systems were applied to generate frequency counts of responses which resulted in the preparation of frequency distribution tables. A summary of the frequency counts for owner-manager competences according to their demographic features is presented in (Appendix A10, p. 214). Based on this frequency distribution a ranking of the competences was undertaken that resulted in the selection of competences considered as important for innovative activity by the owner-manager respondents. It is observable from the findings that there exist a great disparity in assessments given to strategic skills (66% indications) and communicating skills (22% indications). Consequently, it is decided that only competences that received a minimum of 66% of the respondent's indications should be considered relevant owner-manager competences for innovation in SME and a valid constituent of the owner-manager competency profile.

In order to enhance the reliability of findings of the frequency counts for the respondent's demographic features, the descriptive statistical analysis of the owner-manager competences was extended to cover standard deviation (σ) and mean (\bar{x}) tests. Table 24 is an illustration of the mean scores and values of the standards deviation for each of the demographic features, namely gender, age, and level of education of the owner-managers. In order to determine which competences can be assumed to be relevant, in the respondents' opinion, the author applied the global average assessment method.

Figure 9. Owner-manager competences ratings based on the global average



* - global average (\bar{x}) for the set/ cut-off point.

Source: Own elaboration based on research findings

This is obtained by dividing the sum of the means by the number of items ($n=15$). The global average (\bar{x}) of the set of competences covered by the study was 1.47 points. Hence, any competence whose frequency rating was higher or equal to the global average was considered by the author as important and suitable for determining the competency profile of the owner-manager of an innovative SME in Podkarpatie province. This procedure resulted in the emergence of a general set consisting of eight ($n=8$) owner-manager competences. Figure 10 illustrates the ratings for the general set of owner-manager competences and the delineation made using the global average (\bar{x}) point of 1.47.

The findings contained in Figure 9 confirm the existence of a set of owner-manager's competences, essential for engaging in innovative activities as there is lack of grounds to reject the hypothesis (H_0).

Each of the competences were assigned codes, similar to those in the expert's survey findings. The list, in the opinion of the responding owner-managers of innovative SMEs in Podkarpatie province, of such competences together with their respective codes includes the following in sequential order: leadership (MC6), decision-making (MC1), setting goals (MC4), motivating (MC13), analytical thinking (MC14), strategic skills (MC3), identifying risk levels (MC8), and identifying market needs (MC2). They, thus constitute the input for further qualitative analysis, investigating the hypotheses of the dissertation.

Similarly, the reliability of findings of the frequency counts was tested using the descriptive statistical analysis of the data regarding the organization's factors, namely size of company, type of innovation activity, scope of business activity as well as line of business was also conducted. Frequency counts as well as the mean scores and standard deviation were also determined. The 62% points score for "motivating" was considered by the author as the minimum eligible as the next competence, coping with stress, scored only 31% points. Hence, any owner-manager competences that obtained not less than 62% of the respondents' scores were considered as relevant to be considered as constituents of the owner-manager competency profile (table 24).

In keeping with the methodology adopted for the dissertation, the enhancement of the reliability of findings of the frequency counts for the organizational features, the descriptive statistical analysis of the owner-manager competences was supported with standard deviation (σ) and mean (\bar{x}) tests. Table 25 illustrates the findings of the analysis. The set of owner-manager competences identified as the outcomes of the descriptive analysis regarding organizational factors turned out to be the same as those obtained from analysing the respondent's demographic features.

Table 27 provides a full list of the set of competences regarded as relevant for innovation practices by the respondents, based on the descriptive analysis.

Despite the confirmation of the main hypothesis, using the two previous analytical approaches, the author considered it necessary to undertake further verification processes. This was achieved through the analyses of the alternative hypotheses. The findings of the testing, using the one-way ANOVA analysis as well as the non-parametric Kruskal-Wallis ANOVA test are presented in the next section.

Table 25. Frequency counts for owner-manager competences regarding the organization's factors

	General	Size of Company				Innovation Type				Scope of Activity				Line of Business Activity			Total	%
		Micro	Small	Medium	Product	Service	Mkting	Org.	Local	National	International	Service	Production					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
MC6 - Leadership	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13	100		
MC1 - Decision-making	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13	100		
MC4 - Setting goals	X	X	X	X	X	X	X		X	X	X		X		11	85		
MC2 - Identifying market needs	X	X	X	X	X	X			X		X	X	X		10	77		
MC14 - Analytical thinking skills	X	X	X			X	X		X	X		X	X		9	69		
MC8 - Identifying risk levels	X	X		X	X	X			X		X	X	X		9	69		
MC3 - Strategic skills	X	X		X		X		X		X	X	X	X		9	69		
MC13 - Motivating	X		X	X	X		X				X	X	X		8	62		
MC7 - Coping with stress				X	X			X	X						4	31		

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MC15 - Communicating skills			X				X			X				3	23
MC11 - Perseverance							X	X						2	15
MC5 - Creativity						X								1	8
MC12 - Identifying opportunities		X												1	8
MC10 - Adaptability														0	0
MC9 - Knowledge application skills														0	0

Source: Own elaborations based on research findings

Table 27. Identified set of owner-manager competences for innovation with assigned codes

Set of respondent's competences with codes	
Codes	Competence names
MC1	Decision-making skills
MC2	Identifying market needs
MC3	Strategic skills
MC4	Setting goals
MC6	Leadership
MC8	Identifying risk levels
MC13	Motivating
MC14	Analytical thinking skills

Source: Own elaborations based on research findings

5.2.2. Analysis of the competence structure of SME owner-managers – selected criteria

An in-depth verification of the main hypothesis, confirmed in section 5.2, was conducted along two path-ways. The results of both verifications are presented in this section. The first of the two hypothesis tested was H_1 .

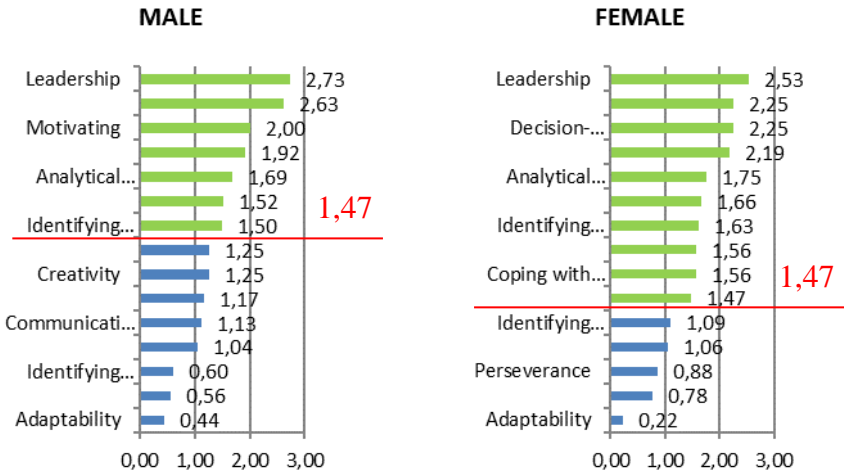
H_1 : There is no statistically significant difference in the set of key competences regarding the owner-manager's demographic features.

Supporting hypotheses tested to verify H_1 included the following:

H_{11} : There is statistically significant difference in the set of key competences of the owner-manager due to gender.

The descriptive statistical analysis of the owner-manager competences already elaborated upon in section 5.2.1 was continued, testing male and female respondents separately. The detailed analysis revealed that seven competences ($n=7$) were selected by male responding owner-managers. Female respondents assessed the various competences higher than their male counterparts. Consequently, more competences made the minimum global average cut-off point ($x=1.47$), resulting in ten competences ($n=10$) being selected. Owner-manager competences ratings with respect to gender of respondents are presented in figure 10, and summarized in table 28.

Figure 10. Owner-manager competences rating according to gender – research findings



Source: Own elaboration based on research findings

Table 28. Owner-manager competences according to gender – research findings

Respondents' competences for innovation according to gender	
Competences by males	Competences by females
MC6 – Leadership	Leadership
MC1 - Decision-making	Decision-making
MC4 - Setting goals	Setting goals
MC14 - Analytical thinking	Analytical thinking
MC8 - Identifying risk levels	Identifying risk levels
MC2 - Identifying market needs	Identifying market needs
MC13 – Motivating	Motivating
	MC3 - Strategic skills
	MC15 - Communicating skills
	MC7 - Coping with stress

Source: Own elaboration based on research findings

An analysis of the frequency counts of the respondents' indications based on gender was also undertaken (Appendix A10, p. 214). Despite the difference in the number of competences chosen between male and female respondents, it is observable from table 28 that seven competences are common to both sets of

owner-manager’s competences relevant for innovative activities in SMEs in Podkarpacie. Besides the seven competences, common to both sexes, three other competences made the cut-off point ($x=1.47$) in the case of female respondents. These include strategic skills (MC3), communicating skills (MC15) and coping with stress (MC7).

Despite the convincing findings, the author was keen on checking for any statistical significant disparities capable of impacting on the set. The analytical procedure was, hence, employed to test the sets, checking if gender differentiates any of the selected competences. The non-parametric ANOVA Kruskal-Wallis test was applied in the testing. The analysis showed that gender does not differentiate $p>\alpha$ ($p=0.309$) any of the competences selected by the respondents (table 29). **In consequence, the alternative hypothesis H_{11} , stating that there is statistically significant difference in the set of key competences of the owner-manager due to gender is rejected.**

Table 29. Results of the ANOVA Kruskal-Wallis tests regarding owner-manager demographic factors

Respondents’ competences vs demographic factors-test findings			
Owner-manager competences	Gender	Age	Level of Education
MC8 - Identifying risk levels	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC1 - Decision-making	$p>\alpha$	$p>\alpha$	0,0049**
MC5 - Creativity	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC3 - Strategic skills	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC4 - Setting goals	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC1 - Leadership	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC13 - Motivating	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC12- Identifying opportunities	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC2- Identifying market needs	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC11 - Perseverance	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC7- Coping with stress	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC14 - Analytical thinking skills	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC15 - Communicating skills	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC9-Knowledge application skills	$p>\alpha$	0,035*	$p>\alpha$
MC10 - Adaptability	$p>\alpha$	$p>\alpha$	$p>\alpha$

Source: Own elaborations based on research findings

H_{12} : There is statistically significant difference in the set of key competences of the owner-manager due to his/her age.

The impact of the respondents age on the designation of which competences are key to engaging in innovative activities by owner-managers of SMEs was also studied. The findings, applying the cut-off point ($x=1.47$), showed that owner-managers aged 30 or below and the over 45-year olds selected seven competences (7) each, while those within the 30–45-year-old age bracket selected six (6). Results of these findings are illustrated (Appendix B2, p. 219).

Table 30. Owner-manager competences according to age – research findings

Respondents' competences for innovation according to age		
<30 years	30–45 years	>45 years
MC6 - Leadership	Leadership	Leadership
MC1 - Decision-making	Decision-making	Decision-making
MC13 - Motivating	Motivating	Motivating
MC4 - Setting goals	Setting goals	Setting goals
MC2- Identifying market needs	Identifying market needs	Identifying market needs
MC14- Analytical thinking skills	Analytical thinking skills	
MC3 - Strategic skills		Strategic skills
		MC8- Identifying risk levels

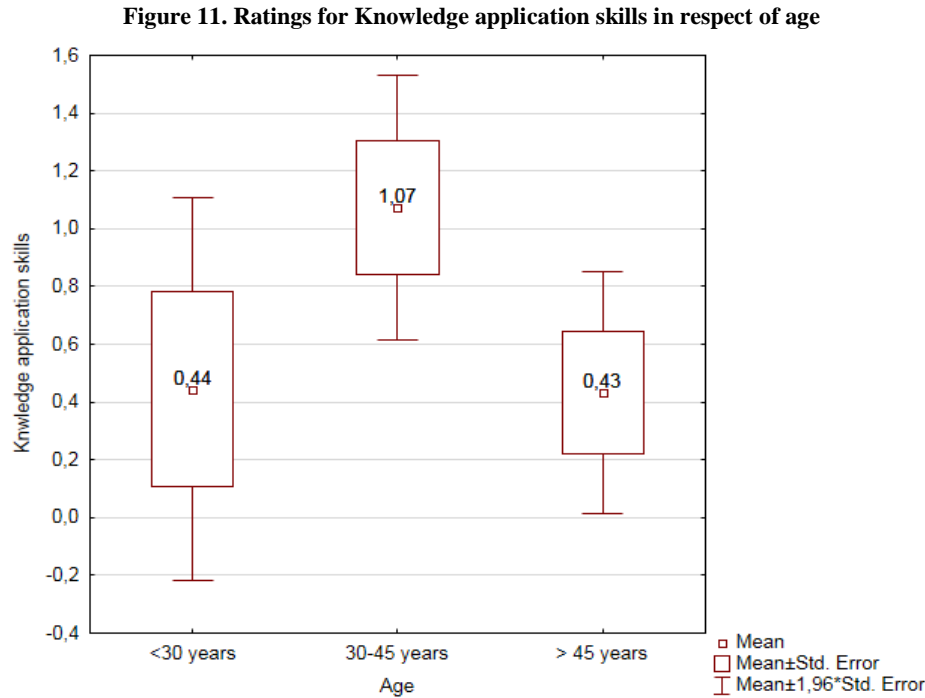
Source: Own elaboration based on research findings

Using the one-way ANOVA analysis, it was observed that the respondent's age did not differentiate their choice of competences $p > \alpha$ ($p=0.108$). The competences found to be common (5) to all three age categories were leadership, decision-making, motivating, setting goals and identifying market needs (table 30).

The findings were also analysed using the non-parametric ANOVA Kruskal-Wallis test to ascertain if age differentiates the selection of competences by owner-managers. It was observed that the respondent's age influenced the rating for knowledge application skills $p < \alpha$ ($p=0.035$) (table 29). A detailed analysis of this observation revealed (figure 11) that knowledge application skills was rated the highest by respondents aged 30-45, while the lowest was by respondents older than 45 years of age. However, it can be observed that the rating by the over 45 year olds was lower than the global average cut-off point (1.47). Thus, this singular influence on knowledge application skills was considered not enough to warrant the conclusion that respondent's age had statistically significant influence on competence ratings and selection by owner-managers of SMEs. Hence, **the alternative hypothesis H_{12} is likewise rejected.**

H₁₃: There is statistically significant difference in the set of key competences of the owner-manager due to his/her level of education.

The last of the three demographic factors studied in respect of owner-managers' selection of competences relevant for innovative SMEs was their levels of education, namely secondary, secondary-technical and higher/tertiary. The study revealed that respondents with secondary level of education designated nine (9) competences, while those with secondary-technical and higher/tertiary designated eight (8) and seven (7) competences respectively (Appendix B3, p. 220).



Source: Own elaboration based on research findings

Tests carried out using the one-way ANOVA analysis indicated that acquired levels of education had no influence $p > \alpha$ ($p = 0.114$) on the selection of competences relevant for innovation. Relying on the findings summarized in table 31 below, it can be observed that the group of competences common to all three levels of education consists of five (5) competences, namely leadership, setting goals, motivating, analytical thinking and identifying risk levels. Table 31 shows that the highest number of competences (9) was selected by respondents with secondary level of education, while the least (6) was by those with higher/tertiary level of education.

Table 31. Owner-manager competences according to levels of education

Respondents' competences for innovation according to levels of education		
Secondary	Secondary technical	Higher/tertiary
MC6 - Leadership	Leadership	Leadership
MC4 - Setting goals	Setting goals	Setting goals
MC13 - Motivating	Motivating	Motivating
MC14 - Analytical thinking skills	Analytical thinking skills	Analytical thinking skills
MC8 - Identifying risk levels	Identifying risk levels	Identifying risk levels
MC3 - Strategic skills		Strategic skills
MC2 - Identifying market needs	Identifying market needs	
	MC1 - Decision-making	Decision-making
	MC7 - Coping with stress	
MC15 - Communicating skills		
MC11 - Perseverance		

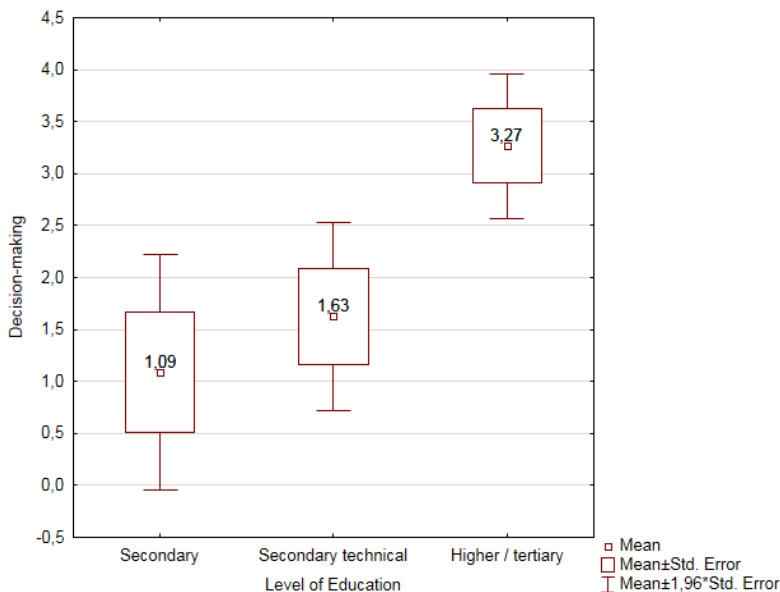
Source: Own elaboration based on research findings

The findings were subjected to further analysis using the non-parametric ANOVA Kruskal-Wallis test to ascertain if levels of education differentiate any of the competences. The study revealed that the level of education influenced (table 29) the selection for decision-making $p < \alpha$ ($p = 0.0049$). Figure 12 shows that respondents with secondary level of education rated decision-making the lowest mean score ($x = 1.09$), whilst respondents with higher/tertiary level of education rated it the highest mean score ($x = 3.27$). It can be concluded from these findings that the higher the level of education, the higher value is attached to decision-making by the respondents.

Despite the notable differentiation in the rating for decision-making due to the level of education, this cannot be used as a premise to conclude that the level of education of the owner-managers had any statistically significant influence on the competency profile of owner-managers of innovative SMEs. Subsequently, **the alternative hypothesis H_{13}** , stating that there is statistically significant difference in the set of key competences of the owner-manager due to his/her level of education, **was equally rejected**.

The analytical results presented in the foregoing sections clearly indicated that none of the three demographic factors describing the owner-manager of innovative SMEs in Podkarpacie had statistically significant influences on the rating, hence the selection of competences relevant for innovative activities in SMEs. These findings do not give grounds to reject the alternative hypothesis H_1 , namely **“There is no statistically significant difference in the set of key competences regarding the owner-manager’s demographic features”**. The alternative hypothesis **H_1 is thus supported**.

Figure 12. Mean scores for level of education vs decision-making



Source: Own elaboration based research findings

The main hypothesis was also verified with a second alternative hypothesis, concerning the organization's characteristic features.

H₂: There is no statistically significant difference in the set of owner-manager's key competences regarding the organization's characteristic features.

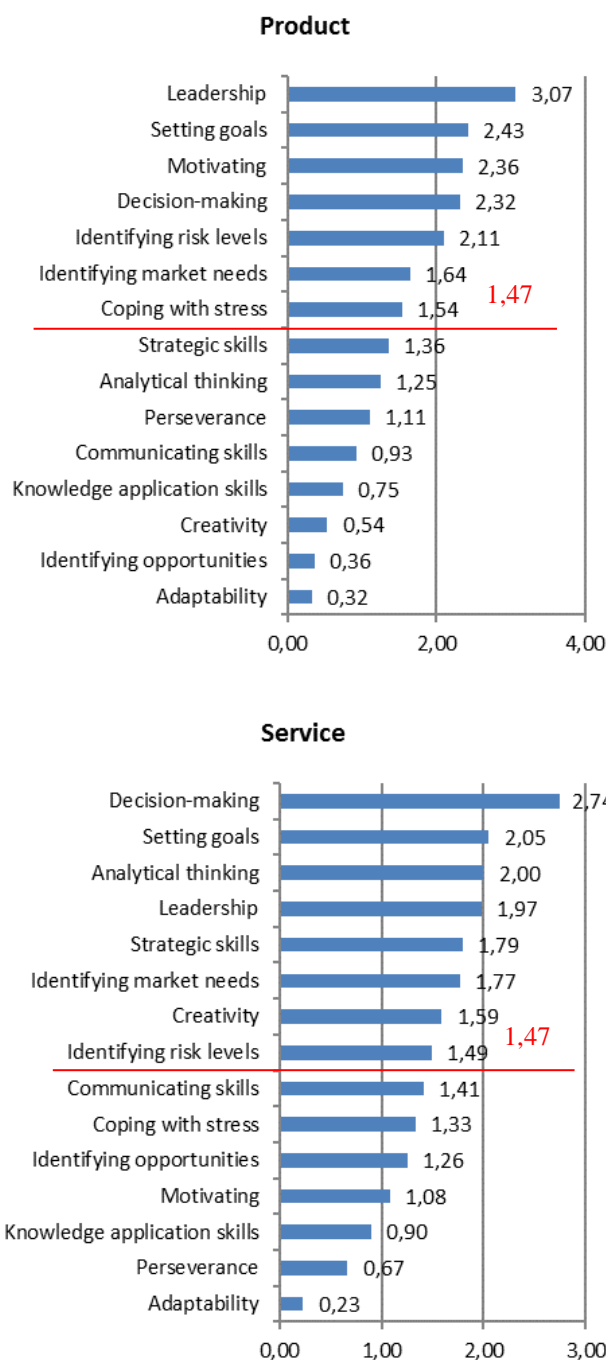
The following four supportive hypotheses were tested in an attempt to validate H₂.

H₂₁: There is statistically significant difference in the set of key competences of the owner-manager regarding the type of innovation.

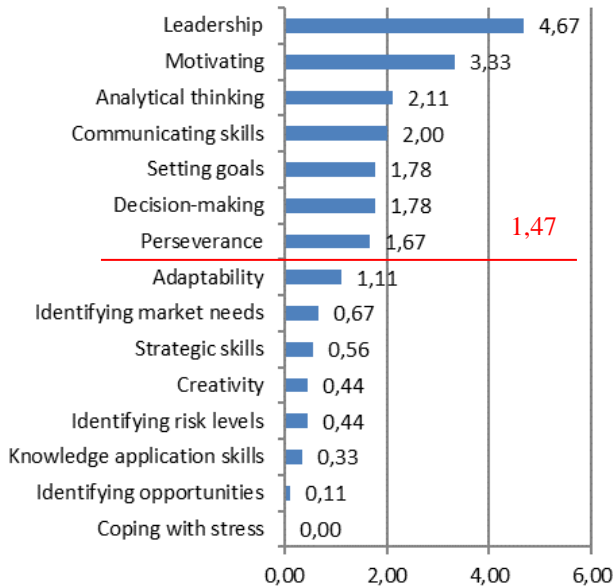
The procedure followed in respect of the owner-manager's demographic features is replicated in respect H₂ to discern if the organization's characteristic features influenced, significantly, the owner-manager's set of key competences for innovation in SMEs. A summary of the findings is presented in the following sections.

First, the author wanted to know if the type of innovation, namely product, service, marketing and organizational, had influenced owner-managers' choice of competences. The set arrived at, having applied the global average restriction, showed that only two competences were found to be repeatedly selected in each of the four types of innovation researched, namely leadership (MC6) and decision-making (MC1). The other competences tend to overlap across the four types of innovation activities.

Figure 13. Owner-manager competence ratings regarding type of innovation



Marketing



Organizational



Source: Own elaboration based on research findings

Moreover, the result, using the one-way ANOVA test confirmed that the type of innovation influenced the choice of competences $p < \alpha$ ($p = 0.034$). Graphical representations of the findings indicating mean scores are provided in figure 13. Relying on these findings, it can, hence be concluded that the tests indicated the existence of a significant differentiation in the selection of competences by owner-managers engaged in various types of innovation activity. A summary of the competences selected regarding product, service, marketing and organizational types of innovation is presented in table 32.

Table 32. Owner-manager's competnces according to types of innovation activity

Respondents' competences for innovation according to type of innovation activity			
Product	Service	Marketing	Organizational
MC6 - Leadership	Leadership	Leadership	Leadership
MC1 - Decision-making	Decision-making	Decision-making	Decision-making
MC4 - Setting goals	Setting goals	Setting goals	
MC2 - Identifying market needs	Identifying market needs		
MC8 - Identifying risk levels	Identifying risk levels		
MC13 - Motivating	MC3 - Strategic skills	Motivating	Strategic skills
MC7 - Coping with stress	MC14 - Analytical thinking	Analytical thinking	Coping with stress
		MC11 - Perseverance	Perseverance
	MC5 - Creativity	MC15 - Communicating skills	

Source: Own elaboration based on research findings

The non-parametric ANOVA Kruskal-Wallis test was also used to verify the fact if the type of innovation activity differentiates the various competence ratings. The study indicated that the type of innovation activity undertaken by the owner-manager influenced their selection, regarding formulation of strategy $p < \alpha$ ($p = 0.0488$), leadership $p < \alpha$ ($p = 0.0157$), motivating $p < \alpha$ ($p = 0.0267$), coping with stress $p < \alpha$ ($p = 0.0466$) as well as adaptability $p < \alpha$ ($p = 0.0038$), table 33.

It was important to see how the mentioned competences were selected across the four types of innovation activity, using their mean scores.

It was observed that the competence, strategic skills (MC3), was rated highest by owner-mangers engaged in organizational innovation ($x = 4.25$), but the least by owner-managers in marketing innovation ($x = 0.96$). While leadership (MC6) and motivating (MC13) were rated highest ($x = 4.67$) and ($x = 3.33$) respectively

in marketing innovation, they were rated the lowest ($x=1.97$) and ($x=1.08$) respectively in service innovation. Coping with stress, on the other hand was rated highest by owner-managers engaged in organizational innovation ($x= 2.75$) and lowest ($x= 0.00$) in marketing innovation. The findings illustrated in figure 14 also indicated that most of the competences were rated higher than the global average ($x=1.47$) adopted for the analyses.

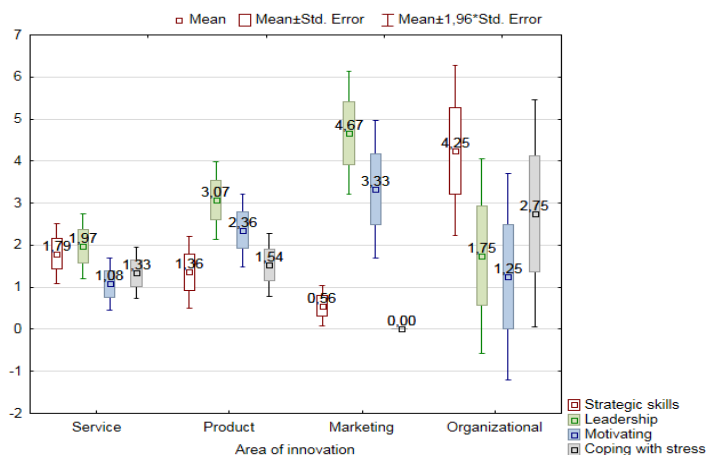
Table 33. Results of the ANOVA Kruskal-Wallis tests regarding organization’s characteristic features

Respondents’ competences vs organization’s characteristic features				
	Line of business	Type of innovation	Scope of business activity	Size of enterprise
MC8 - Identifying risk levels	$p>\alpha$	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC1 - Decision-making skills	$p>\alpha$	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC5 - Creativity	0.0403	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC3 - Strategic skills	$p>\alpha$	0.0488	$p>\alpha$	$p>\alpha$
MC4 - Setting goals	0.0141	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC6 - Leadership	$p>\alpha$	0.0157	$p>\alpha$	$p>\alpha$
MC13 - Motivating	$p>\alpha$	0.0267	0.0009	$p>\alpha$
MC12 - Identifying opportunities	$p>\alpha$	$p>\alpha$	0.0431	$p>\alpha$
MC2 - Identifying market needs	$p>\alpha$	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC11 - Perseverance	$p>\alpha$	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC7 - Coping with stress	$p>\alpha$	0.0466	$p>\alpha$	$p>\alpha$
MC14 - Analytical thinking skills	$p>\alpha$	$p>\alpha$	$p>\alpha$	$p>\alpha$
MC15 - Communicating skills	$p>\alpha$	$p>\alpha$	0.0284	$p>\alpha$
MC9 - Knowledge application skills	$p>\alpha$	$p>\alpha$	$p>\alpha$	0.0045
MC10 - Adaptability	$p>\alpha$	$p>\alpha$	$p>\alpha$	$p>\alpha$

Source: Own elaboration based on research findings

The study findings indicate that the influence of the type of innovation activity undertaken by owner-managers on what constitutes their competency profile was statistically significant. Therefore, **hypothesis H₂₁**, namely that there is statistically significant difference in the set of key competences of the owner-manager regarding the type of innovation, **is supported since there are no grounds for its rejection.**

Figure 14. Type of innovation activity vs mean scores for strategic skills, leadership, motivating, and coping with stress



Source: Own elaboration based on research findings

H₂₂: There is statistically significant difference in the set of key competences of the owner-manager regarding the scope of business activity.

The author attempted to identify if the selection of the set of owner-manager's competences was in any way determined by the enterprise's scope of business activity. The analysis was based on the global average ($\bar{x}=1.47$) restriction applied to the frequency of choice. The result of the findings is illustrated in (Appendix B4, p. 221). The outcome of this analysis indicated that three competences, leadership (MC6), decision-making (MC1) and setting goals (MC4) were found to be commonly selected for all three market categorizations (table 34).

Table 34. Owner-manager competences according to the scope of business activity

Respondents' competences according to scope of business activity		
Local	Nation-wide	International
1	2	3
MC6 – Leadership	Leadership	Leadership
MC1 - Decision-making	Decision-making	Decision-making
MC4 - Setting goals	Setting goals	Setting goals
MC14 - Analytical thinking	Analytical thinking	
MC8 - Identifying risk levels		Identifying risk levels
MC2 - Identifying market needs		Identifying market needs
	MC4 - Strategic skills	Strategic skills

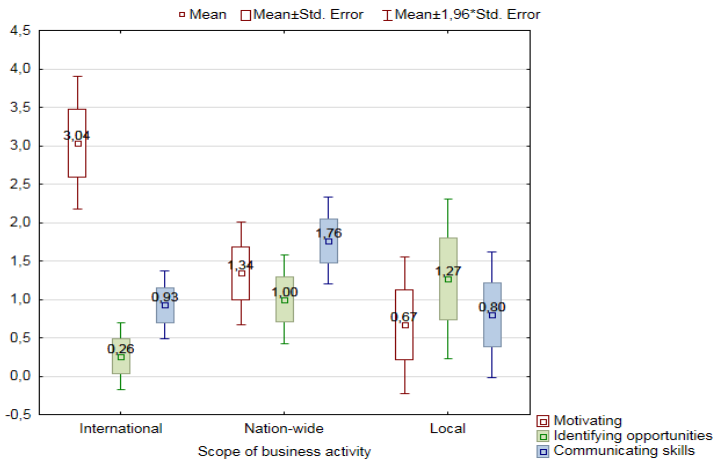
1	2	3
MC7 - Coping with stress		MC13 - Motivating
MC12 - Identifying opportunities	MC15 - Communicating skills	

Source: Own elaboration based on research findings

The author further investigated if the selection of competences by owner-managers of innovative SMEs depended on their scope of business activity using the non-parametric ANOVA Kruskal-Wallis test. There was indication that the scope of business activity influenced the choice of three competences, namely motivating $p < \alpha$ (0.0009), identifying opportunities $p < \alpha$ (0.0431) and communicating skills $p < \alpha$ ($p = 0.0284$) (table 33). However, the tests conducted using the ANOVA one-way factor analysis to detect any possible statistically significant dependencies failed to indicate any influence of enterprise's scope of business activity on the selection of competences by owner-managers $p > \alpha$ ($p = 0.267$).

The author also sought to know how the different markets influenced the choice of the three competences. It turned out that motivating (MC13) was rated highest ($x = 3.04$) by owner-managers operating in international markets, while being rated the lowest ($x = 0.67$) by those operating in local markets (figure 15). The highest rating for identifying opportunities (MC12) was designated by owner-managers doing business in local markets in contrast to international owner-managers that assigned it the lowest rating ($x = 0.26$). Communicating skills (MC15) were, on the other hand, rated the highest by owner-managers operating in the national market in contrast to those whose business activity is restricted to their localities ($x = 0.80$).

Figure 15. Scope of business activity vs ratings for motivating, identifying opportunities and communicating skills



Source: Own elaborations based on research findings

Despite the fact that the non-parametric ANOVA Kruskal-Wallis test indicated differentiation in the owner-managers set of competence for innovative SMEs in respect of three competences, namely motivating (MC13) ($p=0.0009$), identifying opportunities (MC12) ($p=0.0431$) and communicating skills (MC15) ($p=0.0284$) (table 43), the ANOVA one-way factor analysis did not indicate any statistically significant differences in the competence ratings $p>a$ ($p=0.267$). Consequently, **hypothesis H₂₂**, which assumed that there is a statistically significant difference in the set of key competences of the owner-manager regarding the scope of business activity, **is rejected**.

H₂₃: There is statistically significant difference in the set of key competences of the owner-manager regarding the line of business.

Furthermore, the study investigated if the line of business activity, services and production, had any influence on the designation of the competences of owner-managers of innovative SMEs (**H₂₃**). The initial analysis involved the application of the global average ($x=1.47$) restriction on the frequency choices of competences for innovation made by owner-managers. Investigations conducted using the ANOVA one-way factor analysis did not reveal any direct impacts of enterprise's line of business on the selection of the owner-manager's competences for innovation, $p>a$ ($p=0.415$). The group competences selected relative to the line of business activity is depicted in Appendix B5 (p. 222).

As much as seven out of the eight competences selected by the responding owner-managers were found to be common to both (production and services) lines of business. The findings are summarized in table 35.

Table 35. Owner-manager set of competences relative to line of business activity

Respondents' competences according to line of business activity	
Services	Production
MC6 – Leadership	Leadership
MC1 - Decision-making skills	Decision-making skills
MC13 – Motivating	Motivating
MC8 - Identifying risk levels	Identifying risk levels
MC14 - Analytical thinking skills	Analytical thinking skills
MC2 - Identifying market needs	Identifying market needs
MC3 - Strategic skills	Strategic skills
	MC4 - Setting goals

Source: Own elaboration based on research findings

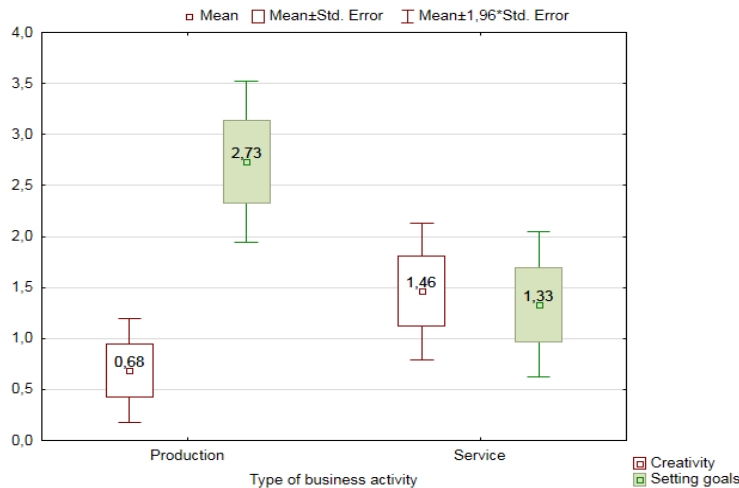
However, a closer examination of the influence of lines of business activity using the non-parametric ANOVA Kruskal-Wallis test for each of competences revealed that the ratings for creativity $p < \alpha$ ($p=0.0403$) and setting goals $p < \alpha$ ($p=0.0141$) were differentiated (table 33). Responding owner-managers of production oriented enterprises rated setting goals (MC4) higher than their counterparts in services-oriented enterprises. With respect to creativity (MC5), however, the reverse was the case as it was rated higher by owner-managers of services-oriented enterprises (figure 16).

Despite these differences, the ANOVA one-way factor analysis did not confirm any statistically significant differences in the overall set. Hence, the alternative **hypothesis H₂₃ was rejected**.

H₂₄: There is statistically significant difference in the set of key competences of the owner-manager regarding the size of the enterprise.

The last of the four alternative hypotheses tested, in respect of the enterprise organization’s characteristic features, was if the size of the enterprise had any statistically significant impact on the choice of competences seen as relevant for innovation activities in SME (**H₂₄**).

Figure 16. Line of business activity vs the rating for creativity and setting goals

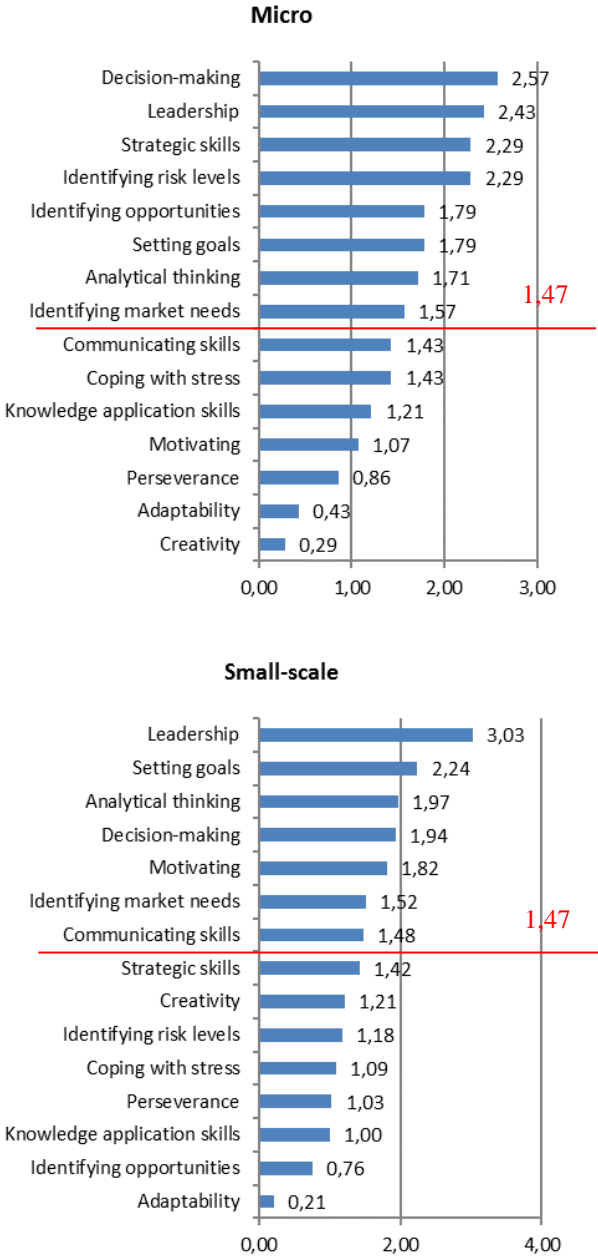


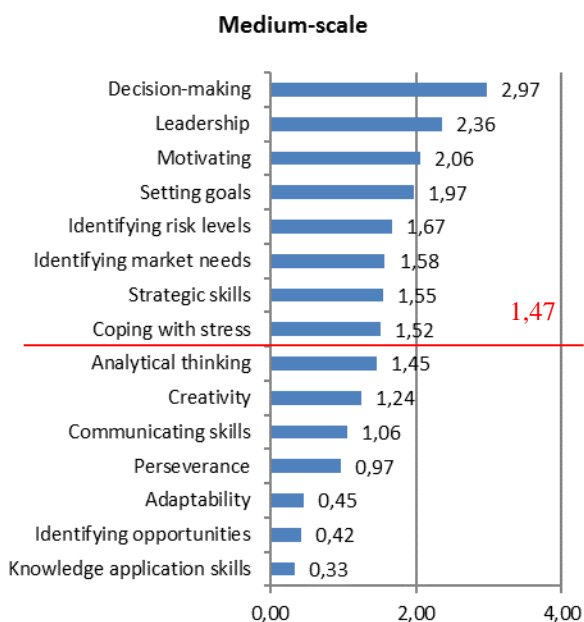
Source: Own elaboration based on research findings

The investigation using the ANOVA one-way factor analysis revealed that the size of the enterprise had no statistically significant impact ($p=0.161$) on the array of owner-manager’s competences for innovation in SME (figure 17). Results of the mean score as well as the global mean indicated that 4 competences were commonly mentioned by owner-managers of all three enterprise studied. These

include leadership (MC6), decision-making (MC1), setting goals (MC4), and identifying market needs (MC2). Table 36 provides a summary of the set of competences selected by the respondents.

Figure 17. Owner-manager competences ratings relative to the size of enterprise





Source: Own elaboration based on research findings

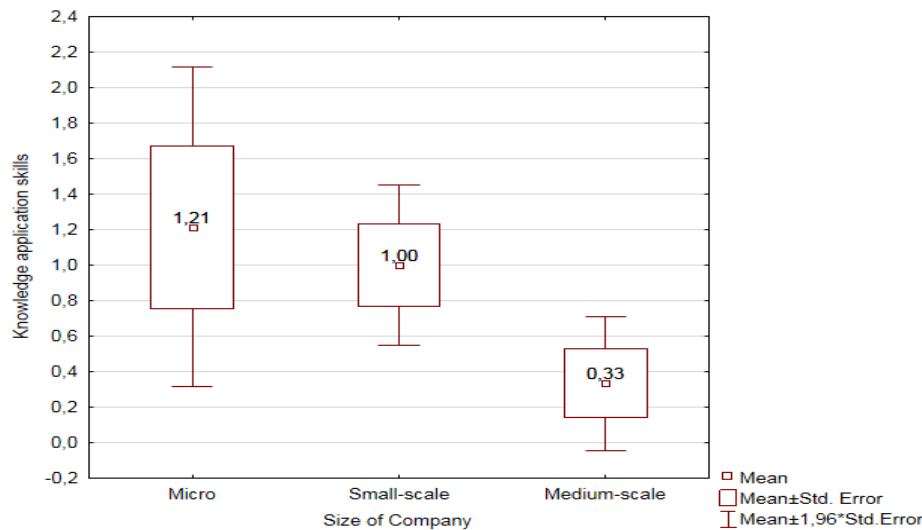
Table 36. Owner-manager competences relative to the size of enterprises

Respondents' competences according to the size of enterprise		
Micro	Small-scale	Medium-scale
MC6 – Leadership	Leadership	Leadership
MC1 - Decision-making skills	Decision-making skills	Decision-making skills
MC3 - Setting goals	Setting goals	Setting goals
MC2 - Identifying market needs	Identifying market needs	Identifying market needs
MC14 - Analytical thinking skills	Analytical thinking	
MC3 - Strategic skills		Strategic skills
MC8 - Identifying risk levels		Identifying risk levels
	MC13 - Motivating	Motivating
	MC15 -Communicating skills	
		MC7 - Coping with stress
MC12 - Identifying opportunities		

Source: Own elaboration based on research findings

Analysis of individual competences using the non-parametric ANOVA Kruskal-Wallis test revealed that the choice of knowledge application skills (MC9) was differentiated by the size of the enterprise $p < \alpha$ ($p = 0.0045$) (table 33). The highest rating for knowledge application skills ($x = 1.21$) was by owner-managers of micro enterprises, in contrast to owner-managers of medium-sized enterprises, who rated it the lowest ($x = 0.33$) (figure 18).

Figure 18. Size of enterprise vs choice of knowledge application skills



Source: Own elaboration based on research findings

The differentiation in the selection of knowledge application skills was not reflected in the overall set of competences as the impact was not statistically significant. Consequently, the **alternative hypothesis, H₂₄ is not supported** as well.

A verification of the alternative hypothesis, **H₂**, namely that there was no statistically significant difference in the set of owner-manager’s key competences regarding the organization’s characteristic features cannot be supported. This is despite the findings which demonstrated beyond reasonable doubt that the type of innovation activity significantly differentiated the selection of key competences of owner-managers of innovative SMEs. However, since the other three supportive hypotheses (H₂₂, H₂₃, and H₂₄) were rejected for lack of any statistically significant differentiation of the set of owner-manager’s competences for innovative activities the alternative hypothesis (**H₂**) was hence, rejected.

Based on the research to verify the hypotheses set for the dissertation, using the statistical tests with a significance level of $\alpha = 0.05$, the following conclusions were made and summarized in table 37.

Table 37. A summary of the analyses of hypotheses- research findings

Hypotheses testing and their conclusions		
Hypothesis	Hypothesis description	Conclusion
H₀	There exists a set of key competences of the owner-manager of an innovative SME	<i>Supported</i>
H₁	There is no statistically significant difference in the set of key competences regarding the owner-manager's demographic features	<i>Supported</i>
H ₁₁	There is statistically significant difference in the set of key competences of the owner-manager due to gender	<i>Not supported</i>
H ₁₂	There is statistically significant difference in the set of key competences of the owner-manager due to his/her age	<i>Not supported</i>
H ₁₃	There is statistically significant difference in the set of key competences of the owner-manager due to his/her level of education	<i>Not supported</i>
H₂	There is no statistically significant difference in the set of owner-manager's key competences regarding the organization's characteristic features	<i>Not supported</i>
H ₂₁	There is statistically significant difference in the set of key competences of the owner-manager regarding the type of innovation	<i>Supported</i>
H ₂₂	There is statistically significant difference in the set of key competences of the owner-manager regarding the scope of business activity	<i>Not supported</i>
H ₂₃	There is statistically significant difference in the set of key competences of the owner-manager regarding the line of business	<i>Not supported</i>
H ₂₄	There is statistically significant difference in the set of key competences of the owner-manager regarding the size of the enterprise	<i>Not supported</i>

Source: Own elaboration based of research findings

5.2.3. Core competences of owner-manager of an innovative SME – model

The three-staged approach for analysing the findings of the main survey was aimed to identify the core competences of responding owner-managers of innovative SMEs in Podkarpacie province. The core competences arrived at following this procedure, namely frequency count and mean scores (general), demographic factors and organizational features using statistical tests can be summarized as follows, table 48.

The data presented in table 38 indicate that eight competences were identified in each stage of the analysis, having made the minimum discriminatory mean score ($x=1.47$) cut-off point. The demographic analysis also indicated that female respondents also selected two additional competences, communicating skills (MC15) and coping with stress (MC7).

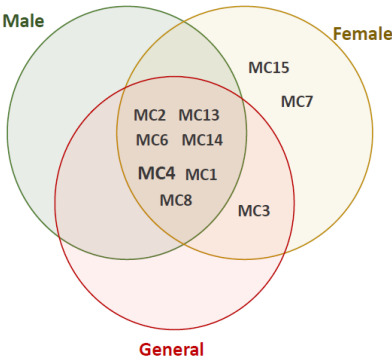
Table 38. A summary of owner-manager’s competences for innovative in SMEs

Owner-manager competences according to		
General (core) competences	Organization’s factors	Demographic features
MC6 - Leadership	MC6- Leadership	MC6-Leadership
MC1 - Decision-making	MC1- Decision-making	MC3-Setting goals
MC4 - Setting goals	MC4- Setting goals	MC13- Motivating
MC13 - Motivating	MC2- Identifying market needs	MC1- Decision-making
MC14 - Analytical thinking skills	MC14- Analytical thinking skills	MC14- Analytical thinking skills
MC3 - Strategic skills	MC8- Identifying risk levels	MC2- Identifying market needs
MC8 - Identifying risk levels	MC3- Strategic skills	MC8- Identifying risk levels
MC2 - Identifying market needs	MC13- Motivating	MC3- Strategic skills
		MC15-Communicating skills
		MC7 - Coping with stress

Source: Own elaboration based on research findings

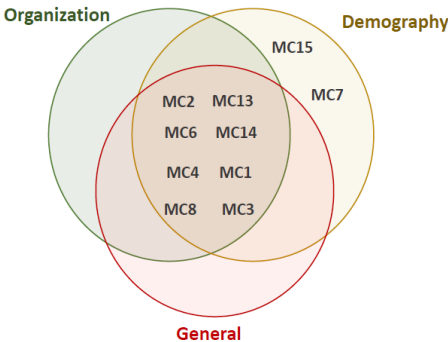
The object of the study, owner-managers of innovative SMEs covered is either male or female who differed in their choice of competences for innovation activities. Since a key aim of the dissertation is to arrive at a verifiable core competences of owner-mangers of SMEs engaged in innovative activities, the author therefore considered it necessary to compare the gender findings with those presented in table 38 to see if any discrepancies can be observed. An illustration of this comparison and observed findings are presented in figure 19a and 19b.

**Figure 19a. Core competences:
general vs male and female**



Source: Own elaboration based on research findings

**Figure 19b. Core competences:
general vs organization and demography**



Source: Own elaboration based on research findings

It is noticeable that strategic skills (MC3) which was outside the core area in figure 24a, having not been chosen by male respondents was assimilated in figure 24b. Coping with stress (MC7) and communicating skills (MC15) failed to make the core area in both cases. Following this detailed comparative analysis and verification processes of the various findings, the author is compelled to conclude that the model of core competences of owner-managers of innovative SMEs consisted of eight (n=8) competences as listed in table 39.

Table 39. Model of core competences of innovative SME owner-managers

SME owner-manager’s competency model	
Codes	Competence titles
MC1	Decision-making skills
MC2	Identifying market needs
MC3	Strategic skills
MC4	Setting goals
MC6	Leadership
MC8	Identifying risk levels
MC13	Motivating
MC14	Analytical thinking skills

MC = managerial competence; *Source: Own elaboration based on research findings*

In recognition of the significant functions of the owner-managers of innovative SMEs, as well as to stay in tune with management studies, the author sought to identify which management functions, based on literature studies, are represented in the list of owner-manager’s competences identified, and considered vital in enterprises’ pursuit of innovation in the opinion of the respondents. Competences are, in management studies, divided into groups or clusters. The author, hence, identified which and how many of such groups are embodied in the owner-manager core competences identified in the study. Table 40 is an illustration of these findings.

Table 40. Owner-manager’s core competences, managerial functions and competency groups

SME owner-manager’s competency model			
Codes	Competence titles	Managerial functions*	Competency groups**
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
MC1	Decision-making skills	Planning	Conceptual
MC2	Identifying market needs	Planning	Conceptual
MC3	Strategic skills	Planning	Conceptual
MC4	Setting goals	Planning	Commitment
MC6	Leadership	Motivating	Relationship

1	2	3	4
MC8	Identifying risk levels	Planning/controlling	Strategy
MC13	Motivating	Motivating	Learning
MC14	Analytical thinking skills	Controlling	Learning

Source: Own elaboration based on research findings.

*(Koźmiński, A., 2004; Lachiewicz, S. & Matejun, M., 2012a; de Oliveira, J. et al. 2015);

** (Ahmad, N.H., 2007; Winterton, J. & Winterton, R., 2002; Mohsin, A., et al. 2017)

The core competences of owner-managers of innovative SMEs were also investigated regarding competency domain classification.

5.2.4. Owner-manager core competences and domain features

Varied classifications of managerial, including owner-manager's competences for innovation exist in subject literature. One of such is Bloom's classification into domains (chapter 3) that is readily referred to in literature as building blocks for competency profiles. The study also attempted to discern how the competences of SME owner-managers in Podkarpacie are reflected along the domain constituents of attitudes, skills, knowledge and experience (ASK+E). The respondents awarded percentage values to each of the constituents that should give a total of 100%.

The descriptive statistical analysis involved calculating averages of the percentage values assigned showing how owner-manager's competences should be distributed with respect to innovation activities. The results were also checked for any differentiation with regards to demographic features, gender, age and level of education. The outcomes of these analyses, including the general average scores, given in percentages is summarized in table 41.

Table 41. Average percentage scores for owner-manager core competences in general and according to demographic features

Domain constituents by SME owner-managers (%)				
Details	Attitude	Skills	Knowledge	Experience
General	14%	23%	33%	30%
Male	15%	23%	34%	29%
Female	13%	24%	32%	31%
<30 years	12%	22%	34%	32%
30-45 years	14%	24%	34%	29%
> 45 years	16%	22%	32%	31%
Secondary	20%	27%	28%	25%
Secondary technical	13%	21%	36%	30%
Higher / tertiary	13%	23%	32%	31%
min	12%	21%	28%	29%
max	20%	27%	36%	32%

Source: Own elaboration based on research findings

Although the tests analysing the individual competences in respect of the specified features did not yield any significant differences and that the distribution look similar, it is undeniable that owner-managers of innovative SMEs in Podkarpacie emphasize the roles of knowledge (32%) and prior experience (31%) in their pursuit of innovation.

The findings thus presented, regarding competency domain identified, show that knowledge and experience domains play dominant roles in each of the demographic features studied. Indeed, none of the demographic features of owner-managers had any statistically significant impact on this dominance. This is, to some degree, corroborated by findings which indicate that as much as three of the eight core competencies are conceptual in nature, thus emphasizing the role of knowledge competency domain. The learning competency group was represented twice, which is an indication that owner-managers pay attention to competences in the experience domain in managing and furthering their innovative drives. Other competency domains identified include commitment, strategy and relationship.

5.2.5. Owner-manager core competences and stages of innovation creation

The study relates owner-manager's core competences with innovation, which is a creation process. Innovation, as revealed in the literature study, is procedural going through stages or phases. Likewise, since the owner-managers are persons who engage in innovation in their enterprises, the author researched if it was possible to identify competences for each of the four stages of innovation creation proposed by Stauffer, D.A. (2015) as discussed in chapter 2, namely idea generation, action/exploration, reality/ innovation testing as well as feedback or innovation diffusion stages. The respondents were asked to indicate which competences they see as significant at each stage of innovation creation with regards to the type of innovation. The results from their frequency of indications were converted into percentages and presented in Appendix A11 (p. 215). A grading scale (see legend) ranging from less significant to the most significant was developed and the competences were grouped accordingly. Only competences that achieved 50% or more of the respondents' indications were accepted for consideration as significant for a given stage of innovation creation. A summary of the findings, indicating dominating core competences significant to particular stages of innovation creation is provided in table 42.

In the opinion of the respondents identifying risk levels (MC8) and motivating (MC13) are crucial at the idea generation (brainstorming for ideas) stage, while decision-making skills (MC1) is seen to be significant at the action/ exploration of concepts stage. Identifying market needs (MC2), understood as being skillful in identifying what the requirements of the target market are, was found essential at the innovation testing stage.

What is worthy of note, however, is the fact that although none of the core competences made the 50% significance level for innovation diffusion, two competences setting goals (MC4) and leadership (MC6) drew the attention of the respondents.

Table 42. A summary of dominating core competences, significant for stages of innovation creation

Significance of core competences for stages of innovation creation				
Core competences	Idea generation	Action exploration	Reality innovation testing	Feedback innovation diffusion
MC8 - Identifying risk levels	58%	28%	38%	29%
MC1 - Decision-making skills	20%	51%	44%	18%
MC3 - Strategic skills	31%	39%	35%	26%
MC4 - Setting goals	30%	24%	46%	34%
MC6 - Leadership	30%	38%	34%	34%
MC13 - Motivating	51%	29%	38%	30%
MC2 - Identifying market needs	31%	28%	53%	23%
MC14 - Analytical thinking skills	38%	39%	35%	24%

Source: Own elaboration based on research findings

5.3. Frameworks for designing competency models of owner-managers of innovative SMEs

Although the main objectives of the dissertation were to identify the core competences of owner-managers of SMEs in Podkarpacie province and design the relevant model which was achieved in sections 5.1 – 5.2.5, the author felt it compelling to enhance the utility of the findings for practitioners and personnel as well as academic trainers. A sure step towards this is to adequately define or provide explanations of what constitutes each competence.

Table 43. A summary of interview respondents' demography

Respondents data by gender			
Metrics	Male		Female
	3		3
Level of education	Higher/ tertiary		
Age	30–45	>45	30–45
	2	1	
Type of business	Production (2); IT software applications (1)		Production (1); marketing (2)
Scope of business activity	International		Local /nationwide
Size of enterprise	Small		Micro / small

Source: Own elaboration based on research findings

To achieve this an interview survey method was applied. Since personal contacts were impracticable, given the restrictions on human movement due to threats of COVID-19 virus, telephone calls with recording devices were applied to conduct such interviews in March 2020. The interviews were in Polish language, which having been transcribed were subjected to parallel translation techniques (chapter 1). Table 43 is a summary of the data concerning the respondents.

The respondents consisted of 6 persons in all, 50% male and female each, holders of higher/tertiary certificates of education. Majority (83%) of the respondents were aged 30–45 years old, who own and manage micro and small enterprises in areas of production, marketing and IT software applications. While the female respondents limit their business to the national market, the males have extended their tentacles to the international market.

The respondents were asked to talk about how they understood a given competence and the things they do as part of the competence in their roles as owners. The premise and lead question for the interview was: “Enterprise owner-managers are known to possess specific competences (survey findings) that enable them achieve their objectives of engaging in business activities. What specific actions do owner-managers have to take, within each identified competency, in managing their innovative enterprises on daily basis”? The question was translated into Polish language as follows “*właściciele firmy posiadają konkretne kompetencje, by móc z sukcesem realizować ich cele podejmowania działania. Jakie elementy omawianych kompetencji są istotne w prowadzeniu innowacyjnej firmy*”? The findings are juxtaposed with perspective views from literature in subsequent tables 44–51 for purposes of reference and possible identification of areas of similarity or differences in the owner-managers views relative to descriptors in management literature. The author wishes to acknowledge that the literature on competency description is robust, but has, for the purpose of this dissertation selected the Harvard University Dictionary of Competences as a reference material. Owner-managers in SME is specific in its nature, hence the material is supplemented with other sources that focus on the subject area (Llopis, G., 2014; Gardelliano, S., 2002). Such knowledge could serve as useful inputs in designing owner-manager competency models, not only in SMEs.

Table 44. Owner-manager v theorists’ perspectives regarding leadership competency

ELEMENTS OF LEADERSHIP /MC6/	
According to research findings	According to literature*
1	2
<ul style="list-style-type: none"> – it is discerning feasible /practical ideas in the midst of chaotic ideas; – building a strong position by taking action, even without a full vision of project implementation; 	<ul style="list-style-type: none"> – having a vision for long-term goals; – establishing trust in employees; – ability to make better use of existing/untapped talents for innovation;

1	2
<ul style="list-style-type: none"> – instilling confidence / trust in the team even when they do not believe in the success of a new task; – convincing subordinates to their own ideas; – skillfully providing reliable information; – being an inspiration for subordinates (team), by setting oneself as an example 	<ul style="list-style-type: none"> – creating conditions that allow networks to emerge and flourish; – facilitating innovation culture – employees feel safe to express own ideas; – a change agent that encourages teams to think critically.

*Source: Own elaboration based on research findings and *literature study findings*

Table 45. Owner-manager v theorists' perspectives regarding setting goals competency

ELEMENTS OF SETTING GOALS /MC4/	
According to research findings	According to literature*
<ul style="list-style-type: none"> – ability to split the main goal into smaller ones for easy implementation by responsible persons; – setting goals and duration for their implementation as well as enforcing their achievement; – ability to relate implementation of goals and the degree of involvement of own resources with the level of risk; – perceiving direct/ strong relationship between goals needs of the market. 	<ul style="list-style-type: none"> – having SMART (specific, measurable, attainable, relevant and time-bound) goals; – able to define where the firm is heading/ what needs to be achieved/expected outcomes, including time schedule. – guiding people towards goal achievement; – setting progressive goals with small wins;

*Source: Own elaboration based on research findings and *literature study findings*

Both sources understand leadership as having a vision and being able to encourage team by soliciting trust of employees/ subordinates. Despite the unavoidable similarity between both views, it can be observed that literature advocates network, facilitating more openness. On the other hand, owner-managers' view leadership as an exercise in providing inspiration, while remaining a strong focal point. They see own ideas as crucial.

The essence setting goals through their achievements via small steps is emphasized in both approaches. Both approaches see project execution as being tied to time duration, perhaps an element of cost efficiency. However, the literature view seems to let persons in key positions take control of achievements of the small steps based plan set out. Owner-managers keep control, enforcing realization. Moreover, owner-managers tie the volume of their goals factual market observations and not necessarily corporate goals.

Table 46. Owner-manager v theorists' perspectives regarding decision-making skills competency

ELEMENTS OF DECISION-MAKING SKILLS /MC1/	
According to research findings	According to literature*
<ul style="list-style-type: none"> – the ability to make decisions, despite being difficult and uncomfortable, and characterized by high risk. – the ability to involve others, e.g. advisors / experts, in the decision-making process; – the ability to be open to (bottom-up) bottom-generated ideas / contributions to the decision-making process; – delegating of decision making and responsibility for smaller sections of a larger project. 	<ul style="list-style-type: none"> – identifying / understanding issues, problems and opportunities; – ability to compare data & draw conclusions; - identifying needs and anticipating consequences; – involving others in decision-making; – ensuring buy-in and understanding for resulting decisions

*Source: Own elaboration based on research findings and *literature study findings*

Although both see decision-making as a prerogative of the leader, the methods and means of its execution differ. Theorists emphasize a more technical approach – problem and data analysis, comparisons and inferences, whilst owner-managers are more open to the contributions of their stakeholders, (advisers, suppliers, experts, etc., - open source market analysis?) despite being in-charge. The owner-manager accepts full responsibility for decision-making irrespective of the risks involved.

Table 47. Owner-manager v theorists' perspectives regarding analytical thinking skills competency

ELEMENTS OF ANALYTICAL THINKING SKILLS /MC14/	
According to research findings	According to literature*
<ul style="list-style-type: none"> – ability to analyse data for better decision-taking; – understanding and solving problems based on available information; – a keen observer of developments as they emerge; – being able to discern nuances and details to draw logical conclusions; – having a perspective mindset. 	<ul style="list-style-type: none"> – skillful in analysing arguments; – capable of making inferences- inductive / deductive reasoning; – capable of evaluating /resolving problems; – ability to generate ideas.

*Source: Own elaboration based on research findings and *literature study findings*

Problem solving based on the analysis of available information/ or data is valued both by theorists and owner-managers. However, while the theorists

seem to achieve this via algorithms of deduction and inference, owner-managers rely on observing evolving situations, looking for, perhaps, trivial issues that can turn the table around. Flexibility and methodological approach seem to characterize the owner-manager.

Awareness of the existence of multiple and efficient instruments of motivation, not necessarily financial incentives is creditable to both approaches. Major differences, however, are discernable. Theorists see giving feedbacks and allowing subordinates' knowledge inputs as motivating. Owner-managers, in contrast, perceive persuasion and evoking employee's dignity, believing in one's ability – human face of business – as a motivating instrument. Autonomy of initiative should not be equated with infusing the feeling of confidence on someone.

Table 48. Owner-manager v theorists' perspectives regarding motivating competency

ELEMENTS OF MOTIVATING /MC13/	
According to research findings	According to literature*
<ul style="list-style-type: none"> – awareness of the existence and importance of various motivating instruments; – awareness of the efficiency and effectiveness of the incentive instrument; – the ability to make the team believe in their own strength or ability to implement new projects. – appreciating the work of subordinates, not only when they achieve their targets but to induce in them the feeling that they are capable of achieving something. 	<ul style="list-style-type: none"> – giving feedbacks; – allowing for autonomous work initiatives; – using comprehensive reward and incentive system; – allowing room for implicit knowledge to thrive; – showing responsibility; – recognizing merits/ acknowledging achievements

*Source: Own elaboration based on research findings and *literature study findings*

Table 49. Owner-manager v theorists' perspectives regarding identifying risk levels competency

ELEMENTS OF IDENTIFYING RISK LEVELS /MC8/	
According to research findings	According to literature*
<ul style="list-style-type: none"> – ability to assess the risk level and profitability of a new venture; – willing to take risks, adapting them to the size of available resources, especially financial; – undertaking analysis of new concepts/ propositions in terms of meeting market / consumer expectations; – ability to prioritize risk levels. 	<ul style="list-style-type: none"> – awareness of risks due to adverse company culture; – being aware of risks of prolonged project development times; – being aware of possible insufficient support from managers or Board of Directors (BOD); – being conscious of risk due to insufficient knowledge of customers;

*Source: Own elaboration based on research findings and *literature study findings*

Risk awareness is high on the agenda for both theorists and practicing owner-managers. For theorists, risk is part and parcel of identifiable areas of organizational life. Owner-managers' approach seems more holistic and hierarchical. The level of risk depends of relative proportion of resources own to expectations of given markets. Do resources owned meet the expectations and to what extent can resources be committed.

Table 50. Owner-manager v theorists' perspectives regarding identifying market needs competency

ELEMENTS OF IDENTIFYING MARKET NEEDS /MC2/	
According to research findings	According to literature*
<ul style="list-style-type: none"> – being open to ideas / inspirations from customers / market (external sources of ideas); – ability to analyse/ research the competition; – ability to recognize client's needs, even when he / she is not aware of it; – ability to persuade the customer to one's concepts / solutions; – ability to convey information about the attributes and usefulness of a given product or solution. 	<ul style="list-style-type: none"> – ability to identify consumer segments; – knowing when and where customers buy their products/services; – analysing purchase and demand data; – undertaking direct /indirect competitor analyses; – analysing complimentary products/services.

*Source: Own elaboration based on research findings and *literature study findings*

The need to satisfy their customers necessitates undertaking measures to identify their needs. While the theorists rely mostly on analysis set data, e.g., market segmentation analysis, the owner-manager gives much space to listening ("feeling") to market signals from customers and partners. Identifying market needs for owner-managers is often intuitive in person-to-person communicative contact.

Accepting and willing to deal with uncertainties and planning for such exigencies even in the long distant future is strategic for both theorists and owner-managers. Planned improvements (research) is emphasized by theorists in contrast to owner-managers for whom it is recurrent as they engage partners in identifying signals. Social interactions to listen in to persons, feel the pulse of the market is strategic for owner-managers.

Hence as a summary of this part of the chapter, it is worth noting that the competences analysed, in the owner-managers' opinion and from the theoretical perspective, relate basically to the same substantive areas. The descriptions and analysis presented in tables 43–51 show that the practical application of the indicated competences in the SME is more related to the business operations, results, achievement of goals than with processes, stages or schemes that make up these activities in theory. Comparing the descriptive structure of the competences analysed, the author's attention is drawn to the fact that the description of competences presented by owner-managers is dominated by skills and not knowledge, attitude or experience.

Table 51. Owner-manager v theorists' perspectives regarding strategic skills competency

ELEMENTS OF STRATEGIC SKILLS /MC3/	
According to research findings	According to literature*
<ul style="list-style-type: none"> – ability to look in the long term perspective; – sticking to your ideas, even when they seem unrealistic and infeasible in the views of others or for the time-being; – ability to analyse/ scrutinize the course of the manufacturing process; – ability to involve/ engage people in the analysis and implementation of the project in accordance with the longer development perspective of the company; – ability to listen to others, and sometimes differing views. 	<ul style="list-style-type: none"> – preparing for what he wants the company to be like; – dealing with difficult issues; – focusing on new initiatives; – being comfortable with volatile effects of change; – accepting uncertainties and plans to achieve success; – ability to make employees agree with his plans and are ready to buy-in; – a risk taker; – organizing efficient teams; – seeking continuous improvement on current issues.

*Source: Own elaboration based on research findings and *literature study findings*

The interview questions also covered creativity (MC5), which did not make the global mean score ($x=1.47$) cut-off point and consequently was not considered a core competence. The author, in the interview, sought explanations from respondents why, in their opinion, creativity was not selected as a core competence for innovation. Some of their responses, which the author considered significant are presented, on quote.

“Creativity occurs at various levels of company management and at various stages of the project development, hence people may have difficulties identifying themselves as creative”

– *Respondent 1, aged 65, hair care and beauty products manufacturer*

“Innovation process, as practiced by many, consists of adapting or copying existing solutions (adoptive innovation), that is why some people cannot define their innovation as product of their creativity”

– *Respondent 2, aged 54, hygiene care products manufacturer*

“Creativity in our industry sector (IT) is top-of-the-list. Being competitive and innovative in our sector requires quick invention of new solutions that result in customer satisfaction, bringing measurable benefits”

– *Respondent 3, aged 42, software solutions provider*

“That’s weird! Owners must be creative at the idea generation stages of product development”

– *Respondent 4, aged 39, manufacturer of body care products.*

“The owner's creativity manifests itself, above all, in generating ideas that the team can implement”

– *Respondent 5, aged 40, consumer products marketing*

“It’s possible that many owner-managers of micro and small enterprises, including myself, think of how to deal with immediate problems to ensure the continuity of their businesses, but not in categories of competence types”

– *Respondent 6, aged 49, manufacturer of printing materials*

Relying on the foregoing, it can safely be concluded that the business owners interviewed have great awareness of what **creativity** (MC5) as a competence is, including its value in successful enterprise management. Relying on the comparison of the findings from the main questionnaire survey and the interview survey, it can arguably be reported that some agree that creativity is significant. In their view creativity is a desired competence and should be sought after amongst employees. In other words, it is enough for owner-managers to employ key employees that are creative in their approaches. However, the number of responses using the frequency counts and mean average analysis was not higher than the global mean restriction cut-off point ($x=1.47$) to make the list of statistically significant owner-manager competences for innovation in SME.

The objective of the author was to understand the core competences of owner-managers identified in table 49, going beyond the theoretical and textbook understanding of the competences contained in tables 55–62 and to gain insight of the perspective opinions of practitioners, owner-managers, of innovative SMEs. Findings from both, main questionnaire and interview surveys show that innovation is viewed and understood differently, leading to the inclusion or non-inclusion of some competences. This notwithstanding, the findings should provide new knowledge on what owner-managers do to accomplish their owner and managerial roles. In pursuit of this, the author analysed the findings to highlight areas of some likely convergences and/or disparities that are discernible.

LEADERSHIP /MC6/: One of such competences where there exists convergence between approaches by theorists and practitioners. The focus is building trust and being decisive in making decisions. Establishing confidence in employees that the boss or owner-manager knows and believes in whatever he is doing and wherever he is taking the company. There is a clear link between decision-making and motivating from the practical perspective.

SETTING GOALS /MC4/: Both theorists and practitioners see this competence as being a strategic objective of any SME. Moreover, they both

assume that leaders/ owner-managers have to be competent in this respect, the one that can facilitate or hinder goal achievement. While theorists view setting goals as a careful planning processes along SMART concept, the practitioners seem to take a more pragmatic, contingency approach, evaluating their goals along with changing market demands and levels of risk.

DECISION-MAKING SKILLS /MC1/: Decision-making according to theorists is procedural following laid down steps or phases. For practitioners it is matter of choice between options for which they seek opinions of stakeholders and/or employees. The focus is on the outcomes of such consultations, even involving external sources.

ANALYTICAL THINKING SKILLS /MC14/: Theorists seem to look at this competence from a technical perspective, while owner-managers are more practical in approach, seeing it as their practical steps in handling daily tasks resulting in innovation.

MOTIVATING /MC13/: A visible distinction between practitioners and theorists is unavoidable. The theorists accept motivating as impacting on employees (provoking them to react as expected). The owner-managers, in contrast, view motivating being implemented through mutual responsibility for a task implementation, enhancing/arousing/ building intrinsic motivation and through that employee involvement/engagement.

IDENTIFYING RISK LEVELS /MC8/: While theorists identify the probability of the occurrence of some risks at certain stages of the project execution/ innovation development, practicing owner-managers rescind themselves to the level of awareness, waiting to deal with it if and when it happens. This, in the author's opinion connotes contingency approach to doing business.

IDENTIFYING MARKET NEEDS /MC2/ Theorists tend to see it as knowledge acquired through procedural data analysis and evaluation in contrast to owner-managers for whom it is the practical aspect listening to (eavesdropping) what the market yearns for by observing their request patterns.

STRATEGIC SKILLS /MC3/ This is seen by owner-managers as a planning skill in contrast to theorists that consider it as the ability to influence the market.

The main achievement of the chapter, a culmination of the key objective of the dissertation, is the identification of the core competences of innovative SME owner-managers in Podkarpacie province from the perspective of their engagement in innovative activities. This was achieved using a three-staged verification research method. The core competency model, identified by the respondents, owner-managers of innovative SMEs in Podkarpacie province, the objects of the author's research is presented in table 48. Additionally, the study identified a proportionate mix of the core competences of owner-managers deemed as essential for each stage of innovation creation, using Stauffer, D. A. (2015) model. This, to the best knowledge of the author is a novelty, since such identification is not readily discussed in entrepreneurial and competency literature.

Conclusions and Discussion

(Research findings)

Conclusions

The main objective of the doctoral dissertation was to design a model of the core competences of owner-managers of innovative micro, small and medium-scaled enterprises existing in Podkarpacie Province. The specific objectives, on the other hand, involved analysing the model in respect of the owner-manager's demographic characteristics, the organization's features as well as in relation to the stage of innovation creation, using qualitative and quantitative analytical methodologies. In addition, the study aimed to propose a framework for designing competency models for SME owner-managers.

To achieve the mentioned objectives, the author undertook a thorough literature study (chapters 1–3). Major conclusions of the literature review include:

- Innovation can be understood from varied perspectives, depending on the classification applied;
- Innovation process is both linear and dynamic, besides being chaotic and goal-oriented, focused on meeting customers' expectations;
- The procedural context of innovation enables the identification of stages of innovation creation;
- Competences are, from theoretical perspectives, including RBV theory, Core Competence theory, and its evolutions Entrepreneurial Competence (EC), Personal Entrepreneurial Competences (PEC) and Female Entrepreneurial Competences (FEC), traits of the owner-manager that contribute to SME innovativeness;
- The efficient application of owner-manager competences depends both on his/her personal characteristics as well as on the enterprises' organizational factors such as line and scope of business activity, type of innovation as well as size of enterprise;
- Competency models consist of domains, the so-called building blocks of competency models, namely attitudes, skills, knowledge and (prior) experience.

The conclusions reached, based on the field researches conducted (chapters 4 and 5), concern the following areas:

Hypothesis testing

The author, in relying on the findings of alternative hypothesis H_1 and H_2 , makes the following conclusions:

The alternative hypothesis H_1 concerned the differentiating influence of the owner-manager's demographic features on the core competences. Three supportive hypotheses, namely in respect of gender (H_{11}), owner-manager's age (H_{12}), and owner-manager's level of education (H_{13}) were analysed. The analysis revealed no significant influence on the composition of the core competences due to gender (H_{11}), $p > \alpha$ ($p=0.309$) and level of education attained (H_{13}), $p > \alpha$ ($p=0.114$). Although the owner-manager's age (H_{12}) was found to have influenced the ratings for knowledge application skills $p < \alpha$ ($p=0.035$), it was rejected. This was due to the fact that such influence was considered insignificant as its rating was lower than the global average (1.47) limitation point. Consequently, the alternative **hypothesis H_1 , providing that there is no statistically significant difference in the set of key competences regarding the owner-manager's demographic features is confirmed.**

The alternative hypothesis H_2 , on the other hand, was in respect of the influence of organization's features on the owner-manager's core competences. This was studied in respect of the type of innovation engaged in (H_{21}), the type of business activity (H_{22}), the line of business activity (H_{23}) as well as the size of the enterprise (H_{24}). The type of innovation activity (H_{21}) was found to have a statistically significant, $p < \alpha$ ($p=0.034$), influence on the owner-manager's core competences. However, since the other three supportive hypotheses, H_{22} $p > \alpha$ ($p=0.267$), H_{23} $p > \alpha$ ($p=0.415$) and H_{24} $p > \alpha$ ($p=0.161$), indicated the non-existence of any statistically significant influence on the core competences of owner-managers, the alternative hypothesis, **H_2 , stating that there is no statistically significant difference in the set of owner-manager's key competences regarding the organization's characteristic features was rejected.**

The outcomes of the conclusions regarding alternative hypotheses H_1 and H_2 provide evidence of the existence of core competences of owner-managers relevant for innovation. Hence, **the main hypothesis (H_0), which states that there exists a set of key competences of the owner-manager of an innovative SME is confirmed.**

The owner-manager's core competences, in respect of the sampled population, for innovation in SME in Podkarpacie province, thus identified include decision-making (MC1), identifying market needs (MC2), strategic skills (MC3), setting goals (MC4), leadership (MC6), identifying risk levels (MC8), motivating (MC13) and analytical thinking skills (MC14). The findings of the hypothesis testing therefore confirm that:

there exists a set, and hence a model of core competences of the owner-manager of innovative SMEs, and that the constituents of the owner-manager's model of core competences is differentiated by the type of innovation activity.

Competency domain constituents:

In keeping with management studies, the identified core competences were also analysed regarding competency domains (chapter 3). Knowledge (33%) and (prior) experience (30%) competency domains were found to be emphasized by innovative SME owner-managers from Podkarpacie province in their pursuit of innovation. The pre-eminence of these two domain areas was not, however, significantly affected by the respondents' demographic factors (5.2.4). ***SME Owner-managers regard knowledge and (prior) experience competency domains as crucial in their innovative pursuits.***

Core competences and stages of innovation creation

Literature posit that innovation is process-oriented going through stages (chapter 2). The issue of identifying relevant competences for each stage was undertaken in the doctoral study despite not being an issue commonly discussed in literature. Analyses carried out in this respect shows that a proportionate mix of the core competences (5.2.3) can be identified with particular stages of innovation creation. For instance, the analysis revealed that identifying risk levels (MC8) and motivating (MC13) clearly lead the pack in the idea generation stage, while decision-making skills (MC1) came on top of the competences for the action stage that involves producing first versions of the innovation. At the innovation testing stage (a feel of the market), identifying market needs (MC2) was a popular choice amongst respondents, closely followed by setting goals (MC4) and decision-making skills (MC1). Leadership (MC6) and setting goals (MC4) were preferred choices at the feedback stage that is essentially information dissemination. ***The findings confirm that owner-manager core competences, including their proportionate mix, are identifiable with specific stages of innovation creation.***

Competency framework

The descriptions of competences provided by owner-managers (5.3) seem to indicate that they view competences from the perspective of goal achievement and business operations success rather than processes, or stages of theoretical understanding. Practitioners' descriptions of competency structures are also dominated by skills approach as against knowledge, attitude or experience. This can be deduced to signal a more pragmatic approach to innovation management in particular and business in general. ***SME owner-managers seem to view competences from the perspective of result /goal achievements and success in their business operations. This is in contrast to the rather procedural or schemed approach in theory.***

Thus, the main and specific objectives of the doctoral dissertation are considered to have been fully achieved.

Discussion

The central issue of the doctoral study was identifying the core competences and hence the model of the core competences of owner-managers of innovative SMEs in Podkarpacie province, Poland. The relationship between owner-manager's core competences and the innovativeness of enterprises, including SMEs is discussed in literature. This relationship often seen as causal in nature relies on the argument that the success of small and medium enterprises, especially their ability to introduce innovation is attributable to the owner-manager's (core) competences (Sankowska, A., 2012; Mitchelmore, S. & Rowley, T., 2013; Mohsin, A. et al. 2017).

The study findings confirm the existence of a set of competences, and hence a model of core competences of the owner-managers of innovative SMEs in Podkarpacie. The findings are corroborated by similar empirical studies undertaken elsewhere in the world (Man, T. W. et al. 2002; Ahmad, N.H., et al. 2010).

The model of owner-manager core competences identified in the study consists of decision-making (MC1), identifying market needs (MC2), strategic skills (MC3), setting goals (MC4), leadership (MC6), identifying risk levels (MC8), motivating (MC13) and analytical thinking skills (MC14). These competences are identifiable with entrepreneurial competences (EC), personal entrepreneurial competences (PEC) and female entrepreneurial competences (FEC) discussed in management studies (Man, T. W. et al., 2002; Wedathanthrige, H., 2014; Mitchelmore, S. & Rowley, T., 2014). It should be emphasized, though, that the constituents of owner-manager's competency models identified in similar researches differ in numbers. This, may be partly ascribed to regional differences, sample sizes and the specific methodologies applied by researchers.

Furthermore, the findings of the current study, covering innovative SMEs in Podkarpacie province, indicated that the constituents of the owner-manager's core competency model were not significantly affected by the owner-manager's gender, age or level of education. This can, by extension be interpreted to mean that these personality traits do not exercise significant influences on enterprise's innovativeness. Some other studies yielded contrary findings. William, C. & Kedir, A. (2018), for example concluded in their studies that SMEs partly or fully owned by women were more successful than those solely owned by men. This was not substantiated in this study as levels of performance or innovation was not central to this study. However, the study finding indicating that majority of female respondents engage in service innovation seem to be supported by Ismail, V. Y. (2013) in his studies in gender roles in SMEs. The service sector seems easier to penetrate and less engaging, hence more attractive to female owner-managers.

The study findings indicate that majority of innovative SME owner-managers in Podkarpacie are aged 30–45 years. The outcome of a national survey organized

by the Polish Agency for Industrial Development (PARP, 2011) identified similar results. Some authors, including Blackburn, R. A., et al. (2013) have postulated that younger owner-managers are more educated. This claim is not confirmed in the current study as the factor analysis has revealed a proportionately higher number of respondents aged over 30 years of age with higher/tertiary degrees than under 30's. Cooney, T.M. (2012) had also claimed that owner-managers educational level influences on business growth was likewise not corroborated in the study. Although the issue was not directly researched in the current study, the findings clearly indicated that secondary certificate holders also successfully engage in innovation. Hence, it can be postulated that the mere possession of a higher level of qualification does not necessarily translate to business success and innovation, including in SMEs.

Summing up, the claim in some sections of literature that owner-managers' demographic characteristics do have incontestable impacts on enterprise's innovativeness (Decyk, K. & Juchniewicz, M., 2012; Cooney, T. M., 2012) is not supported by the study findings. Further studies, focused more on identifying such dependencies need to be undertaken to enhance knowledge in this respect.

The enterprise's organizational characteristic features in relation to the owner-manager's competency model was studied. The study findings revealed the irrefutable impact of the type of innovation on competency constituents required by owner-managers of innovative SMEs from Podkarpackie province, sampled for the study. Innovation, despite being categorized generally as product, service or organizational can be observed from varied perspectives such as open, internal, adoptive/adaptive, collaborative, etc. A similar correlation was also reached by Podmetina, D. et al. (2018) and Riel, A. (2011) in their independent studies.

There is obvious lack of unanimity in subject literature regarding the influence of enterprise size and owner-manager's competency constituents. No substantive differences between the competency constituents of owner-managers in relation to the enterprise size were found in the study. This evidently contrasts the report by the European Commission's Observatory of European SMEs 2003, which demonstrated a strong dependence. A similar position is held by Gunday, G., et al. (2008), who posited that firm size is strongly correlated to innovativeness in SMEs. The study findings, however, remain consistent with other findings in literature. Błaszczuk, D. (2013) and Podmetina, D. et al. (2018), for example, dispute any significant impacts of enterprise size on owner-managers' competency model constituents.

The doctoral study also revealed that SME owner-managers regard knowledge and (prior) experience competency domains as crucial in their innovative pursuits. This seemingly inherent relationship between knowledge and experience is discussed in literature (Sitko-Lutek, A., 2013; Decyk, K. & Juchniewicz, M., 2012; Fores, B. & Camison, C., 2015; Szczepańska-Woszczyna, K., & Dacko-

Pikiewicz, Z, 2014) to mention a few. The indirect impact of experience on knowledge competences is emphasized by Załoga, W. (2013). This is supported by findings of a nation-wide study in Poland where 60% of female start-up SMEs were by owner-managers with prior working experience (Pokojska, J. et al., 2017). The combination of both can enhance the acquisition of other skills necessary for innovation as well as for appropriate reaction to emerging market situations, a desirable factor in rapidly changing and competitive economies.

The issue of owner-manager core competences for stages of innovation creation is, to the best of the author's knowledge, not researched in subject literature and therefore, can be considered novel in similar studies. The findings confirm that owner-manager core competences, including their proportionate mix, can be identified with respective stages of innovation creation.

A framework for designing owner-manager competency model was proposed as part of the doctoral dissertation. A thorough analysis of the respondents' view points on each identified core competence revealed that their key concern is driven by goal achievement and success in their daily operations. This is supported by Kasiewicz, S. et al. (2012), who posit that decision-making in SME is rather driven by emerging opportunities. This projects a reactionary approach to decision-making (MC1) as against pro-active attitudes commonly advised in subject literature.

Contributions

The findings relate, first and foremost, to the research context, the owner-manager's competences for innovation in Podkarpacie province, the presentation of a theoretical model, the provision of a framework for designing competency models as well as identifying core competences for stages of innovation creation.

Cognitive/ learning contributions:

The study provides a detailed description of the impact of demographic features and organizational factors on the constituents of owner-manager core competences for innovation, thus enhancing the understanding of owner-managers, their competences and innovation in SMEs in Podkarpacie. This fills the void in knowledge in this respect. In addition, the study identified core competences for varied stages of innovation creation, thus contributing to a better understanding of owner-manager's competences for innovation creation. The findings may be useful to educational and training institutions to identify and teach courses tailored to the needs of SMEs. Moreover, the study findings provide evidence of the crucial role of the owner-manager, male or female, in determining SME's engagement in innovation and hence should constitute the focus of studies into

competency theories and modelling, entrepreneurship as well as SMEs. This can be achieved by updating their curricula with competences identified in the current study.

Methodological contributions:

A key methodological contribution of the current study is the development of a survey instrument for identifying owner-manager competency needs for innovation. The findings were reinforced with a three-staged qualitative verification process involving mean frequency counts analysis, descriptive statistical analysis and hypothesis testing. The methodology thus provides a verifiable instrument of identifying the core competences of owner-managers for innovation practices. The methodology focused on the owner-manager functioning in a given context and it does seem suitable for studying owner-managers and their core competences in varied contexts if suitably adapted.

Practical contributions:

The study results have not only indicated the competences required by owner-managers of innovative SMEs, but also how they are proportionately needed across stages of innovation creation. It hence, contributes to knowledge for current and future owner-managers on competences required to manage innovation. Understanding that the possession and /or acquisition of core competences has positive correlation with innovative success should encourage SME owner-managers to identify competency needs, intent on achieving success in an increasingly competitive market.

Limitations

A key limitation of the study is the sample size as well as the targeted respondent. Although 120 owner-managers of innovative SMEs were targeted only 80 responses were considered in the analysis. Moreover, only owner-managers of SMEs acclaimed as innovative in the “Podkarpacie Nagroda Gospodarcza” contest were eligible for the study. Comparative analysis with non-innovative SMEs was not covered as it was not the object of the study.

The geographical spread was also a limitation. The model of core competences identified in the study reflect the core competences of owner-managers from Podkarpacie province, Poland, operating in the same business environment and impacted upon by similar external factors. Hence, the use of the model for a wider geographical area with variable external factors might require its modification to take care of regional or territorial variables.

The studies were concluded in a period of relative stable global business environment. Turbulences, as discussed in the earlier chapters are consequences of interactions in competitions, naturally occurring in global markets. The impact of the global pandemic, Covid-19, on business in general, including SMEs has, however, been immense. The challenges for SMEs' owner-managers have been monumental, requiring ingenuity, creativity and perseverance, as well as phenomenal business approaches to sustain their innovativeness. Hence, the possible generalization of the model and the methodological approach is likewise limited. The methodology is not suitable for all cases of investigating competences as it is a tool devised solely to investigate the competences of owner-manager of innovative SMEs.

The core competences identified with the four stages of innovation creation reflect only the competences identified in the model. Hence, it cannot be used as a standard for analysis in other circumstances.

Recommendations for future studies

1. Owner-manager core competences for comparative studies

The study sample was selected from amongst owner-managers of innovative SMEs in Podkarpacie province, analysing if demographic features as well as organizational factors have significant impacts on the model of core competences. Further studies in this area need to cover owner-managers of non-innovative SMEs as comparisons between both can contribute to a deeper understanding of competency requirements for innovation in SME. Moreover, the sample and the study parameters were not subjected to impacts of geographic or territorial divergences. Further studies should cover other provinces to enable comparisons of the impacts or regional/ geographic specifics on the model.

2. Competency model and owner-manager behavioral orientation

Competency models for a given position should, according to literature, embody identifiable and measurable expected behaviours, besides the building blocks (domains). Further studies into owner-manager competences could aim to investigate how owner-manager competences for innovation differ due to variations in their behavioural orientation. This can encourage the offer of a more focused training and advising for owner-managers of SMEs intending to venture into innovative endeavours.

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Appendix

Appendix A: Tables

Appendix A1. Competency classification based on various criteria, identification and description

Classification criteria	Name of competency	Characterization
1	2	3
Competency acquisition source	formal	confirmed with a degree, certificate etc.
	factual	revealed in real work situation
Substantive scope	narrow view	relating to specific professions, function or workplace
	wider view	covering several fields, professional groups
Availability	in-house	available and potential competences of in-house human resources
	external	competences acquired through “borrowing”
Designation	core	common to all employees/ professional groups
	specialized	differ across job positions, function or roles
Management scope	operating	necessary for line managers in their daily routines
	strategic	necessary at higher management levels
Time perspective	current	required “here and now”
	desired	required in a pre-determined future time perspective
Measurability	easily measured	easily observed and measurable
	difficult to measure	not easy as its impacts are only assessable after a time period; e.g., strategic decision-making skills
Accuracy of definition	generally defined	skill not precisely defined, e.g., team supervising
	detailed definition	a distinctively defined skill, e.g., negotiation skills
Scope of impact	wide	necessary for a specific job position
	narrow	enabling effective operation in a widely understood social environment
Content	Technical	technical competences necessary for effective operation in a given profession
	social	encourage team-working spirit
	entrepreneurial	the business awareness, e.g., focusing on success
	conceptual	necessary at highest management levels; system thinking, strategic planning skills

1	2	3
Detailed assessment scale	narrowed	possesses competences or not
	elaborate	1. lacks competences, 2. possess some, but hardly uses them, 3. puts his competences to practical use daily, 4. uses the competences to perform work at very good level, 5. creative use of competences.
Compactness	integrated	competences strongly related to one another, e.g. team-building (communicativeness- leadership-cultural values/ ethics),
	loosely integrated	e.g., vision-leadership predictive skills
Ownership	individual	belonging to a specific person, useful any time/ place
	group	belonging to a team as a result of synergy, useful in specific organizations

Source: Own elaboration based on Walkowiak, R. (2007). Zarządzanie zasobami ludzkimi. Kompetencje, nowe trendy, efektywność, TNOiK, Toruń, 22–23; Sanchez, R., (2004). Understanding competence-based management. Identifying and managing five modes of competence. Journal of Business Research 57, 518–532

Appendix A2. Hay/McBer Competencies: Themes and Clusters

ICM Themes	Clusters
Understanding what needs to be done	Reasoning, Visioning, Know-How, Expertise
Influencing and gaining support	Communications, Interpersonal skills, personal impact, direct influencing, organizational influencing.
Producing the results	Directing, motivating, productivity
Achieving against the odds	Enterprise (self-motivation, initiative, tenacity, information seeking); Confidence (self- confidence, decisiveness); Achievement (achievement drive, calculated risk taking); Resilience (self- control, flexibility, stress tolerance).

Source: Own elaboration based on Ahmad, N. H, (2007. P. 24)

Appendix A3. Titles and High-Level Definitions of the Great Eight Competencies

Competency domain title	Competency domain description
1	2
1. Leading and Deciding	Takes control and exercises leadership. Initiates action, gives direction, and takes responsibility.
2. Supporting and Cooperating.	Supports others and shows respect and positive regard for them in social situations. Puts people first, working effectively with individuals and teams, clients, and staff. Behaves consistently with clear personal values that complement those of the organisation.
3. Interacting and Presenting	Communicates and networks effectively. Successfully persuades and influences others. Relates to others in confident, relaxed manner.

1	2
4. Analysing and Interpreting	Shows evidence of clear analytical thinking. Gets to the heart of complex problems and issues. Applies own expertise effectively. Quickly takes on new technology. Communicates well in writing.
5. Creating and Conceptualizing	Works well in situations requiring openness to new ideas and experiences. Seeks out learning opportunities. Handles situations and problems with innovation and creativity. Thinks broadly and strategically. Supports and drives organisational change.
6. Organizing and Executing	Plans ahead and works in a systematic and organised way. Follows directions and procedures. Focuses on customer satisfaction and delivers a quality service or product in agreed standards.
7. Adapting and Coping	Adapts and responds well to change. Manages pressure effectively and copes well with setbacks.
8. Enterprising and Performing	Focuses on results and achieving personal work objectives. Works best when work is related closely to results and the impact of personal efforts is obvious. Shows an understanding of business, commerce, and finance. Seeks opportunities for self-development and career advancement

Source: Own elaboration based on Bartram, D. (2005). *The Great Eight Competencies: A Criterion-Centric Approach to Validation*. *Journal of Applied Sciences*, Vol. 90 No. 6 pp. 1185–1203

Appendix A4. Competency framework for SME managers acc. Winterton, J. & Winterton, R. (2002)

Competence types	Competence descriptors
Cognitive competence	It's about being able to put acquired knowledge into practical/effective use. Knowledge widely understood as a) contextual, b) procedural, c) tacit and practical and d) technical/theoretical knowledge. In practice, these would call for being able and willing to learn and adapt to changes in the work /business environment.
Functional Competence	Skills that enable employees/ managers to accomplish assigned tasks effectively. The ability to manage resources, human and material including information requires team and strategic leadership to create and manage teams and teamwork effectively.
Personal competences	Attributes of any person, manifested as behavioural patterns in given work environments. These may include influencing others, making them buy-in your ideas; ability to manage oneself (self-reliant, self-motivating, learning from experience and responsibility); ability to build teams with shared visions; displaying leadership and decision-making skills.
Meta-competencies	Competencies of a higher order usually associated with cognitive aspects of organizational management, e.g. ability to cope with stress caused by uncertainties and being able to learn from them; They include judgement and intuition, flexibility, tolerance of ambiguity and the skill of being able to acquire other skills; creativity, mental agility, communication, analysis and problem solving and self-development.

Source: Own elaboration based on a model by Winterton, J. & Winterton, R. (2002). *Entrepreneurship: Towards a competence framework for developing SME managers*. In "United States Association for Small Business and Entrepreneurship Conference Proceedings"

Appendix A5. Entrepreneurial competency classes/ domains identified by Man T.Y. (2001)

Competency domains	Domain descriptions
Opportunity Competencies	Competencies related to recognizing and developing market opportunities through various means
Relationship Competencies	Competencies related to person-to-person or individual-to-group-based interactions, e.g., building a context of cooperation and trust, using contacts and connections, persuasive ability, communication and interpersonal skill
Conceptual competencies	Competencies related to different conceptual abilities, which are reflected in the behaviours of the entrepreneur, e.g., decision skills, absorbing and understanding complex information, and risk-taking, and innovativeness
Organizing competencies	Competencies related to the organization of different internal and external human, physical, financial and technological resources, including team-building, leading employees, training, and controlling
Strategic Competencies	Competencies related to setting, evaluating and implementing the strategies of the firm
Commitment competencies	Competencies that drive the entrepreneur to move ahead with the business
Personal competencies	The competencies are usually behavioural in nature, considered as expressions of a person's characteristic and enduring traits. Acclaimed to be causally linked with superior job execution.
Learning competencies	

Source: Based on a validated model by Man, T.W.Y (2001) *Entrepreneurial Competencies and the Performance of SMEs in the Hong Kong Services Sector. A Doctoral Dissertation, Hongkong Polytechnic University, Hongkong.*

Appendix A6. Entrepreneurial skills classification and descriptors based on EDS framework

Competency category	Descriptors
Technical Skills:	<ul style="list-style-type: none"> Operational: the skills necessary to produce the product or service Supplies/raw materials: skills to obtain them, as necessary Office or production space: the skills to match needs and availability
Managerial Skills :	<ul style="list-style-type: none"> Management: planning, organizing, supervising, directing, networking Marketing/sales: identifying customers, distribution channels, supply chain Financial: managing financial resources, accounting, budgeting Administrative: people relations, advisory board relations Higher-order: learning, problem-solving
Entrepreneurial Skills :	<ul style="list-style-type: none"> Business concept: business plan, presentation skills Environmental scanning: recognize market gap, exploit market opportunity Advisory board and networking: balance independence with seeking assistance
Personal Maturity Skills:	<ul style="list-style-type: none"> Self-awareness: ability to reflect and be introspective Accountability: ability to take responsibility for resolving the problem Emotional coping: emotional ability to cope with a problem Creativity: ability to produce a creative solution to a problem

Source: Own elaboration based on Phelan, C. J. (2014) "Understanding the farmer: An analysis of the entrepreneurial competencies required for diversification to farm tourism", p. 88

Appendix A7. Female Entrepreneurial Competency clusters and their constituent elements

Competency cluster	Constituents
Entrepreneurial Competencies	Idea generation; Innovation skills; Visioning; Envisioning opportunities; Product innovation; Creativity; Willingness to take risks; Scan environments for opportunities; Risk taking
Business/ Management Competencies	Budgeting skills; Business operational skills; Developing management systems; Formulating and implementing strategies for exploiting; opportunities; Business plan preparation and writing; Development of operational systems; Planning business activities; Managing finance
Human Relations Competencies	Employee development; Managing employee performance; Human relation management skills; Employee relations; Hiring skills; Leadership skills; Motivate others; Management style; Management skills
Conceptual/ Relationship Competencies	Interpersonal skills; Oral communication skills; Relationship building; Networking; Integrity; Self-confidence; Motivating self; Political competence; Being active; Desire to succeed; Perseverance

Source: Own elaboration based on Mitchelmore, S. & Rowley, J. (2013). "Entrepreneurial competencies of women entrepreneurs pursuing business growth", p. 13.

Appendix A8. A consolidated list of competences for preliminary studies (Delphi methodology)

S no.	Competences designated for the study		
1.	Identify risk levels	21	Identifying market needs
2.	Decision-making	22	Critical information analysis
3.	Creativity	23	Goal oriented/ Resilience
4.	Result-oriented	24	Prioritizing skills
5.	Planning and organizational skills	25	Business analysis, e.g., SWOT
6.	Showing initiative/ pro-active/	26	Coping with stress
7.	Visionary	27	Analytical thinking skills
8.	Care for subordinates	28	Acting with integrity/ responsibility
9.	Willingly shares knowledge	29	Life balance
10.	Focus on quality/ standards	30	Communicating skills
11.	Setting objectives	31	Inter-cultural awareness
12.	Time management	32	Relationship building
13.	Leadership	33	Accepts responsibility for mistakes
14.	Task delegation	34	Pursuing self-development
15.	Motivating	35	Continuous learning skills
16.	Resource management	36	Ability to apply knowledge
17.	Team-working skills	37	Foreign language skills
18.	Planning and budgeting skills	38	Open to constructive criticism
19.	Negotiating	39	Adaptability
20.	Identifying opportunities	40	Mediating risks

Source: Own elaboration based on literature review

Appendix A9. A consolidated list of competences and findings from the preliminary survey

S/no	Competences	Mean	Median	Mode	S. D	C. V
1.	Decision-making	4.60	5.00	5.00	0.50	10.93
2.	Identifying market/customer needs	4.55	5.00	5.00	0.69	15.08
3.	Strategic/ visionary skills	4.45	5.00	5.00	0.69	15.42
4.	Defining/setting goals	4.40	4.50	5.00	0.68	15.47
5.	Creativity	4.35	4.00	5.00	0.67	15.42
6.	Leadership	4.15	4.00	5.00	0.81	19.58
7.	Coping with stress	4.00	4.00	5.00	1.03	25.65
8.	Identifying/defining risk levels	4.30	4.00	4.00	0.73	17.04
9.	Knowledge application skills	4.25	4.00	4.00	0.55	12.94
10.	Adaptability	4.25	4.00	4.00	0.64	15.03
11.	Perseverance /tenacity	4.20	4.00	4.00	0.70	16.57
12.	Identifying opportunities	4.15	4.00	4.00	0.59	14.15
13.	Motivating	4.10	4.00	4.00	0.91	22.24
14.	Developing identified opportunities	4.10	4.00	4.00	0.72	17.52
15.	Analytical thinking skills	4.10	4.00	4.00	0.97	23.61
16.	Communicating skills	4.10	4.00	4.00	0.72	17.52
17.	Organization/implementation skills	4.00	4.00	4.00	0.73	18.14
18.	Teamworking skills	4.00	4.00	4.00	0.79	19.87
19.	Critical information analysis	4.00	4.00	4.00	0.73	18.14
20.	Prioritizing skills	4.00	4.00	4.00	0.65	16.22
21.	Relationship building	4.00	4.00	4.00	0.56	14.05
22.	Responsibility/ acting with integrity	3.95	4.00	4.00	0.89	22.46
23.	Success/result oriented	3.95	4.00	4.00	0.69	17.38
24.	Resource management	3.85	4.00	4.00	0.81	21.11
25.	Continuous learning skills	3.85	4.00	4.00	0.67	17.42
26.	Initiative driven/ pro-active	3.75	4.00	4.00	1.02	27.19
27.	Care of subordinates	3.70	4.00	4.00	1.03	27.87
28.	Delegating	3.70	4.00	4.00	0.92	24.96
29.	Planning / budgeting skills	3.70	4.00	4.00	0.92	24.96
30.	Quality-oriented	3.65	4.00	4.00	1.04	28.49
31.	Knowledge sharing skills	3.55	4.00	4.00	0.94	26.61
32.	Time management	3.55	4.00	4.00	1.05	29.58
33.	Business analysis	3.45	3.50	4.00	0.89	25.71
34.	Foreign language skills	3.45	3.50	4.00	1.10	31.86
35.	Accepts responsibility for mistakes	3.30	3.50	4.00	1.22	36.92
36.	Mediating skills	3.65	3.50	3.00	0.75	20.42
37.	Negotiating skills	3.55	3.00	3.00	0.94	26.61
38.	Open to constructive criticism	3.50	3.50	3.00	0.69	19.66
39.	Life balance	3.40	3.50	3.00	1.27	37.45
40.	Intercultural awareness	3.15	3.00	3.00	1.23	38.91

Source: Own elaboration of the preliminary survey.

Appendix A10. Frequency counts for owner-manager competences regarding demographic features

	Gender		Age			Level of education			Total	%
	General	Male	Female	<30 years	30-45 years	>40 years	Secondary	Secondary technical	Higher/tertiary	
Leadership	X	X	X	X	X	X	X	X	X	9 100
Setting goals	X	X	X	X	X	X	X	X	X	9 100
Motivating	X	X	X	X	X	X	X	X	X	9 100
Decision-making	X	X	X	X	X	X	X	X	X	8 88
Analytical thinking	X	X	X	X	X	X	X	X	X	8 88
Identifying market needs	X	X	X	X	X	X	X	X	X	8 88
Identifying risk levels	X	X	X			X	X	X	X	7 77
Strategic skills	X		X	X		X	X	X	X	6 66
Communicating skills			X				X			2 22
Coping with stress			X					X		2 22
Perseverance							X			1 11
Adaptability										0 0
Knowledge application skills										0 0
Identifying opportunities										0 0
Creativity										0 0

Source: Own elaborations based on research findings.

Legend: <25% - not significant; 25%-49% - less significant; 50%-75% significant; >75% - most significant

Source: Own elaboration based on research findings.

Appendix B: Figures

Appendix B1. Owner-manager (Main) questionnaire

QUESTIONNAIRE SURVEY

Respondents are kindly requested to complete the anonymous survey on identifying the competences of managers of innovative enterprises. The results will constitute a significant part of a doctoral thesis titled “*Owner-manager’s competences as a determinant of innovation in SMEs located in Podkarpace province, Poland*”. The results will be analysed and aggregated for the needs of the dissertation only. **The author appreciates your co-operation.**

Joseph Ohimor, M.Sc
 Contact: 601529357

1. Indicate 6 most relevant owner-manager competences for managing an innovation-oriented enterprise. (1 most relevant - 6 least relevant)

1.	Identifying/defining risk levels	
2.	Decision-making	
3.	Creativity	
4.	Strategic/ visionary skills	
5.	Defining / setting goals	
6.	Leadership	
7.	Motivating	
8.	Identifying opportunities	
9.	Identifying market/ customer needs	
10.	Perseverance / tenacity	
11.	Coping with stress	
12.	Analytical thinking	
13.	Communicating skills	
14.	Knowledge application skills	
15.	Adaptability	
16.	Other? (If any?):	

2. Indicate, using “X”, the motives for engaging in innovation.

1.	Cost reduction	
2.	Improving quality of products /services	
3.	Producing more durable products	
4.	Meeting customers’ demands	
5.	Enhancing competitiveness	
6.	Enhancing public image (holder of logo)	
7.	Increasing market share	
8.	Self-realization	
9.	Enhancing relations with stakeholders	
10.	Desire to benefit from public /EU funds	
11.	Penetrating new markets	
12.	Achieving financial success	
13.	Other? (If any?)	

3. Write in suitable proportions (%) for the equation for a Manager of innovative enterprise:

$$\text{Knowledge (....\%)} + \text{Skills (... \%)} + \text{Attitude (... \%)} + \text{Experience (... \%)} = 100\% \text{ Manager's competences}$$

4. Which factors are most relevant for innovation activities? Order the following (from 1 – most relevant to 5 – least relevant)

People Goals & tasks..... Technology Structure Environment

5. Which factors are most relevant for innovation activities? Order the following (from 1 – most relevant to 7 – least relevant)

Strategy Structure..... Procedures Employees Skills
 Style (organizational culture)..... Common values

6. Indicate, using „X” the group of factors considered relevant to innovation activities?

Internal factors External factors Both

7. An enterprise innovation management proceeds through phases.

Indicate, using “X” the competence(s) considered relevant for each phase

S/no	Competences	Search for innovation ideas	Exploration /implementing ideas	Innovation dissemination/ evaluation	Inspiration for continued innovation
1	Identifying/ defining risk levels				
2	Decision-making				
3	Creativity				
4	Strategic / visionary skills				
5	Defining / setting goals				
6	Leadership				
7	Motivating				
8	Identifying opportunities				
9	Identifying market/customer needs				
10	Perseverance / tenacity				
11	Coping with stress				
12	Analytical thinking				
13	Communicating skills				
14	Knowledge application skills				
15	Adaptability				
16	Other? (if any)				

8. Which of the given competences groups will be most relevant for innovation in 50 years? (Use “X”)

- | | | | |
|-------------------------------|--------------------------|--------------------------|---------------------------------------|
| 1. Creating ideas | <input type="checkbox"/> | 5. Designing strategies | <input type="checkbox"/> |
| 2. Organizational competences | <input type="checkbox"/> | 6. Opportunity | <input type="checkbox"/> |
| 3. Personal competences | <input type="checkbox"/> | 7. Relationship building | <input type="checkbox"/> |
| 4. Learning | <input type="checkbox"/> | 8. Other | <input type="checkbox"/> which? |

9. Which of these competences will be most relevant for innovation in 50 years? (indicate with “X”)

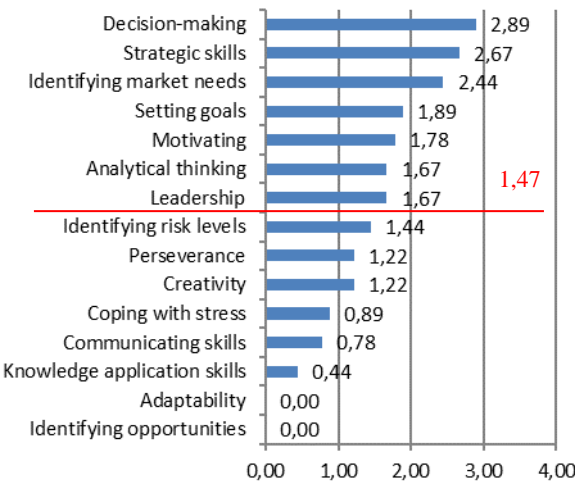
- | | | | |
|-----------------------------------|--------------------------|----------------------------|--------------------------|
| 1. Collaboration | <input type="checkbox"/> | 6. Civic | <input type="checkbox"/> |
| 2. Communicating | <input type="checkbox"/> | 7. Creativity | <input type="checkbox"/> |
| 3. Technical | <input type="checkbox"/> | 8. Critical thinking | <input type="checkbox"/> |
| 4. Interpersonal | <input type="checkbox"/> | 9. Resolving problems | <input type="checkbox"/> |
| 5. Cultural (behavioral patterns) | <input type="checkbox"/> | 10. Performance (progress) | <input type="checkbox"/> |

RESPONDENTS’ SPECIFICS: Indicate the relevant data using „X”

- 1. **Gender:** Female Male
- 2. **Age (years):** <30 30–45 > 45
- 3. **Education:** secondary secondary (technical) University
Any other
- 4. **Is your field of education in line with your current area of business?** YES... NO ...
- 5. **Status:** Owner Manager
- 6. **Company type of activity:** Service..... Production..... Services/Retail
Production/Retail
- 7. **Area of innovation:** Production Service Marketing
Organizational
- 8. **Scope of business activity:** local national international
- Level of employment (nos)**

Appendix B2. Owner-manager competences ratings according to age

<30 years



30-45 years



>45 years



Source: Own elaboration based on research findings

Appendix B3. Owner-manager competences rating according to their levels of education

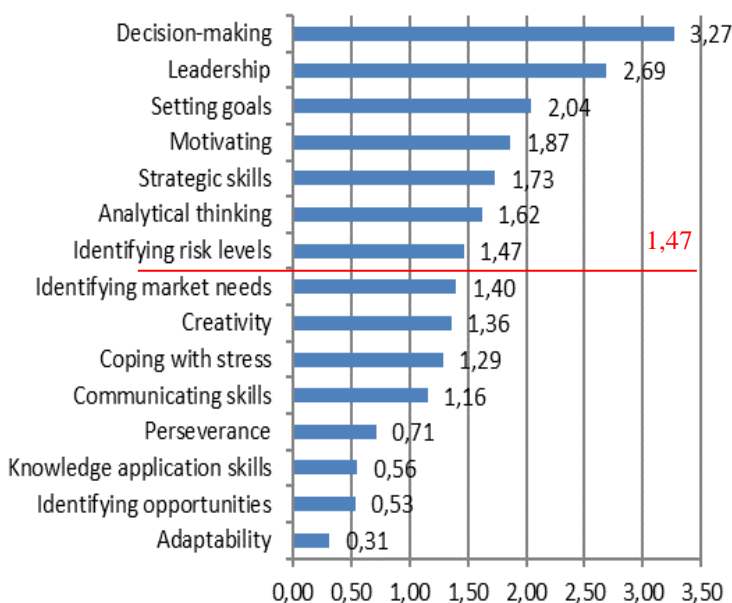
Secondary



Secondary technical



Higher / tertiary



Source: Own elaboration based on research findings

Appendix B4. Owner-manager competences relative to enterprise's scope of business activity

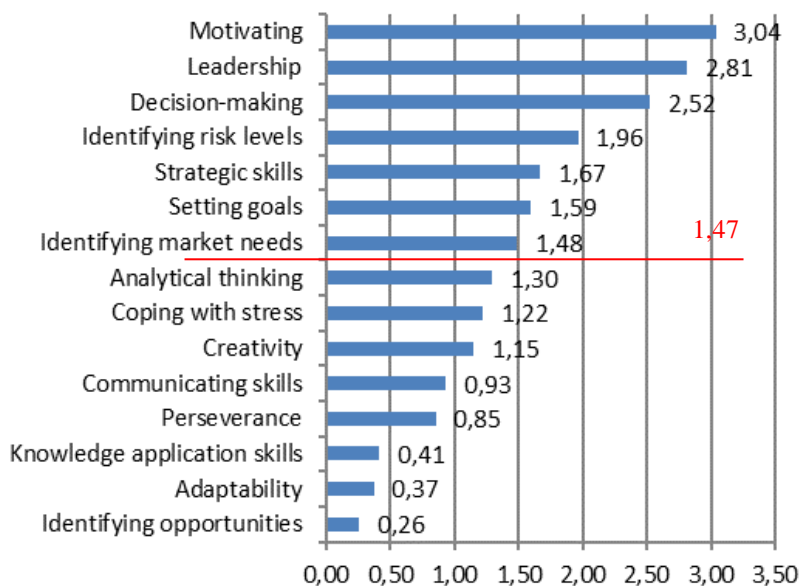
Local



Nation-wide

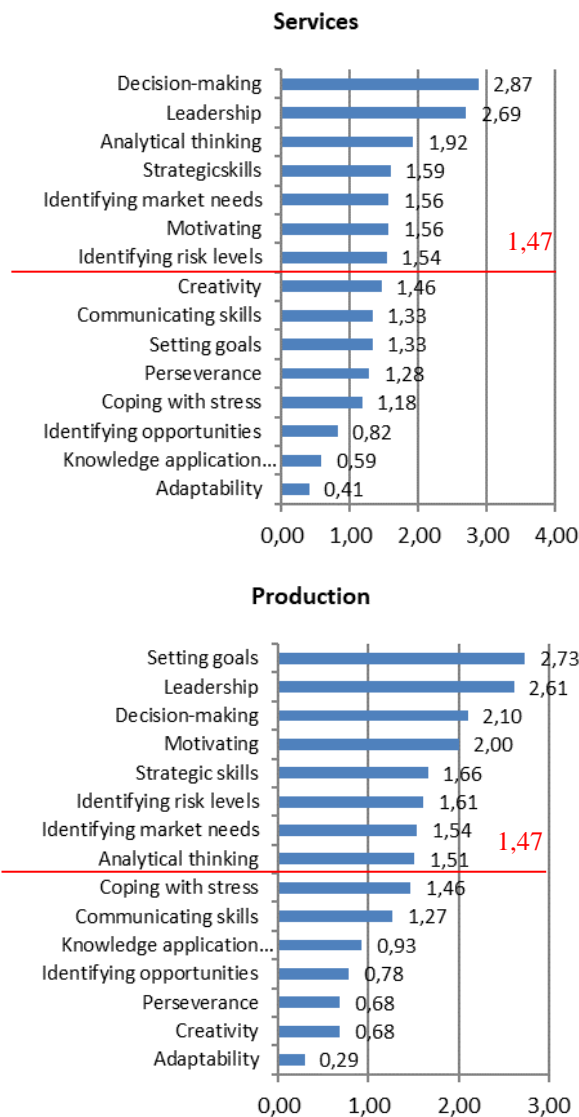


International



Source: Own elaboration based on research findings

Appendix B5. Owner-manager competences ratings relative to line of business activity



Source: Own elaboration based on research findings

