

THE MANAGER'S ROLE IN CREATING INNOVATIONS IN A KNOWLEDGE-BASED ENTERPRISE

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Abstract: The aim of the article is to enable the recognition of the roles, attitudes and, most important, managerial skills in the process of creating innovation in knowledge-based enterprises. To achieve this goal, the literature on the subject was reviewed and an analysis was conducted of selected results of research carried out among enterprises located in science and technology parks (S-TP) in the Warmia and Mazury Voivodeship in Poland.

Keywords: manager, managerial roles, managerial competences, knowledge-based enterprise.

1. Introduction

The dynamic changes in the markets resulting from growing competition and rapid technological progress encourages companies to actively seek and create knowledge and also to use it to increase their innovative character. The knowledge contained in a company and its employees, as well as innovations resulting from its use and development, are now becoming a source of long-term competitive advantage in markets and an indicator of economic success in the conditions of globalization and the knowledge-based economy (Dolińska, 2010). Their importance will certainly rise in the future.

However, implementing innovations should not be an incidental event, but an organized one, based on the never-ending search for development opportunities and for directing people to strive to develop new or improved products, technologies, forms of marketing or organizational solutions, that are in line with the current business challenges and market needs (Penc, 2006).

The perception of knowledge as a strategic resource is the domain of knowledge-based enterprises¹, i.e. those that "focus on creating knowledge, acquiring, learning, sharing, integrating, using and protecting to achieve economic and social results" (Dorinela, 2011, p. 307). It also favours taking risks and creating innovations, accepting the variability of conditions, quick learning, as well as building a market position based on unique competences (Zimniewicz, 2009).

Enterprises aware of the importance of knowledge are looking for managers – professionals capable of independent, effective and effective operation. In a knowledge-based economy, professionalism is expressed not only in the proper performance of activities, but also in the ability to perform various roles, versatility of skills and experience, continuous improvement of competence, flexibility of activity, initiative and mobility. Such elements make up the resource of knowledge that builds every modern and innovative enterprise, because only knowledge is a universal substitute for all other resources. Possessing high quality human capital puts the focus on the issue of formulating employee competencies, including managerial competences. Therefore, it is advisable to identify typical features, competences and skills of a modern manager – a knowledge worker (Białasiewicz, 2011).

The purpose of the study is an attempt to identify the roles, attitudes and most important managerial skills in the process of creating innovation in knowledge-based enterprises. The work is based on analysis of existing research results and own research results.

2. The manager profile in a knowledge-based enterprise

"Innovative companies are almost always managed by innovative leaders" (Dyer, et al., 2012).

A manager is a person responsible for implementing the management process (in particular for planning and making decisions, organizing, leading people and controlling), focused on limited resources and performed with the intention of achieving the organization's goals (Griffin, 2017) – in changing business conditions.

The organization is constantly evolving, paradigms of management are changing (Drucker, 2010; Grudzewski, and Hejduk, 2011; Penc, 2004), hence, the style of effective management is also changing (Table 1). The specificity of the work of modern managers – knowledge workers means that traditional management systems no longer fulfil their task. There is a demand for managers-leaders who ensure stable development in the uncertain environment in which they

¹ M.E. McGill and J.W. Slocum (1996) indicate that a knowledge-based organization is also an innovative or intellectual organization and propose to use these terms interchangeably. The article adopts the term "knowledge-based enterprise", while the term "innovative enterprise" refers to those which in the period under study implemented at least one innovation: product, process, marketing or organizational (*Oslo Manual...*, 2005).

must operate (Sitko-Lutek, 2013). At present, effectiveness and efficiency of operation require completely new skills and personality traits in particular: creativity and innovation, customer orientation, interpersonal skills, leadership and teamwork (Beger, and Beger, 2004). A.K. Koźminski (2004) emphasizes that in the knowledge-based economy, the key to success is creativity and the ability to manage knowledge, and thus causing that all knowledge that team members have, and can acquire, contributes to the implementation of jointly intended innovation, making a fundamental change.

Table 1.

Characteristics of the "old-fashioned" and the "knowledge era" managers

Features of management style	
"Old-fashioned" managers	"Knowledge era" managers
<ul style="list-style-type: none"> – have dictatorial and autocratic tendencies; – they cannot communicate with people, they do not listen to others; – are suspicious of employees; – they are not interested in employee development; – willingly blame others, are critical and capricious; – fear talented subordinates; – they cannot convey positive / negative opinions; – they lack teamwork skills; – claim the merits of others; – manipulate people, are capable of intimidation. 	<ul style="list-style-type: none"> – can set clear goals, are result-focused, consistent and determined in their actions; – support employees, can listen to them, easily communicate with people; – are interested in their employees, take care of their development; – are flexible, willing to change, give employees freedom of action, are available to them; – are highly motivated; – can admit their mistakes; – are aware of their own imperfection.

Source: Thomas M. (2010). *Mistrzowskie zarządzania ludźmi. Tworzenie skutecznego zespołu poprzez motywowanie, wspieranie i przywództwo*. Warszawa: Wolters Kluwer, 47-48.

The manager is the main actor in the management scene (Kuc, 1999) and usually simultaneously plays many interrelated roles understood as 'organized sets of behaviours' (Penc, 2001, p. 78) and permanently learns them from the elements of the dynamic environment that affect him. Managerial roles are included in the following forms of activity (Mintzberg, 1971 for: Penc, 2005):

- interpersonal (figurehead, leader, liaison),
- information (expert, disseminator, spokesperson),
- decision-making (entrepreneur, disturbance handler, resource allocator, negotiator).

These roles are constantly expanding, becoming more active and creative. Faced with the challenges of a knowledge-based economy, these traditional roles are naturally redefined. For example, according to S.R. Covey (1997), the manager of the future should have three key roles:

- defining the direction, i.e. creating an interesting vision and mission that stimulates a sense of purpose; links the value system and vision with the needs of customers,
- correlating, i.e. ensuring integration between employees as well as the mission and strategy of the enterprise, so that organizational processes make an appropriate contribution to satisfying the needs of customers,

- entitlement, i.e. unleashing the talent and creativity of employees, which contributes to achieving shared values of vision and mission in the service of consumers.

Most economists who comment on the manager's profile in the knowledge-based economy agree that the most important component is leadership, i.e. the art of influencing human teams in such a way as to encourage them to achieve strategic, innovation-oriented goals (Kozmiński, 2004; Yukl, 2006). The task of the team leader in a knowledge-based organization should be creating a climate conducive to innovation (Sitko-Lutek, 2013).

The variety of roles required requires appropriate technical, interpersonal, conceptual, diagnostic and analytical skills (Koontz, and Weihrich, 1990). Knowledge of this specificity is necessary to ensure sufficient effectiveness of the manager's work and meet the requirements of this position. That is why scientific research is undertaken to identify the most important managerial competences² in knowledge-based enterprises.

Through a study of 500 innovators, Dyer et al. (2012) identified five discovery skills that distinguish innovators from ordinary managers. These are:

- associative thinking, i.e. combining seemingly unrelated questions, ideas, problems,
- questioning the current state of affairs,
- observing the surrounding world in order to achieve a full picture of the situation,
- establishing relationships among people representing various environments, specializations and views,
- experimenting, i.e. constantly trying new experiences and testing new ideas.

The compilation of cognitive and behavioural skills and the courage to introduce innovation is the DNA model of the innovator, i.e. the code for generating innovative ideas.

In turn, R.M. Kanter (2005), based on an interview conducted among 165 managers from leading international corporations in the USA, presents the following manager profile – innovator:

- ability to sense needs, anticipate changes and have a positive attitude towards them,
- determination (careful planning of activities and tenacity in action),
- ability to combine a holistic vision with attention to every detail,
- participative leadership style,
- stubbornness combined with persuasion and tact.

The authors of another study (Bessant, and Tidd, 2011), similar to R.M. Kanter, emphasize the need to develop competencies (especially soft ones) such as teamwork and leadership skills, learning to learn, as well as a highly developed understanding of the process and its elements, and planning and project management skills that support the implementation of innovation.

² In the literature, the concept of "competences" has become more common, which replaced the concept of "knowledge and skills", with competences taking on a broader meaning (Sudoł, 2006).

On the other hand, research by K. Szczepańska-Woszczyzna (2016) conducted among 200 Polish managers showed that the key competences of a manager in industries characterized by a high level of innovation are:

- knowledge in the field of: the industry, knowledge of organization and management issues and its applications, as well as new trends in organization and management, efficiency in the use of messages and skills,
- skills such as: solving problems (e.g. difficult, unusual situations) and making decisions, operational and strategic thinking, observing the market and competitors, submitting ideas necessary for changes (conceptual analytical skills), commitment, striving for results (social skills), goal setting, strategic thinking and leadership (managerial skills),
- personality traits and attitudes of the leader, i.e. ingenuity, honesty, creativity, openness to change, perseverance and persistence in pursuing the goal, responsibility, consistency in the implementation of taken actions.

In building upon the results of a study on the competence of management in the knowledge-based economy, carried out among 433 managers, T. Kupczyk (2014) diagnosed the strengths and weaknesses of management in enterprises operating in the Lower Silesian Voivodship in Poland. Her work reveals that senior management (compared to mid- and low-level management) is clearly distinguished by: higher activity, analytical skills, entrepreneurship and competition, as well as emotional stability. Top-level managers also had much greater negotiation skills and customer orientation. Their apparent weakness lay in the knowledge and understanding of problems concerning the company and its staff, as well as the ability to translate corporate goals into the goals of individual employees. In turn, lower-level management viewed their maladjustment to the knowledge-based economy, especially as a competence gap in analytical skills, entrepreneurship and competition. They perfectly knew and understood the problems concerning the enterprise and its staff and were able to translate corporate goals into the goals of individual employees.

J. Penc (2000) emphasizes that the most important feature of the competence of a modern manager is the art of making the right decisions. However, in their professional practice, everyone faces problems or sees business opportunities (new product, service, process, business model) for which there is no solution. It is therefore advisable to involve decision makers with strong discovery skills in finding solutions to such unstructured problems (Dyer, et al. 2012).

Enterprise innovativeness, i.e. “the ability to create and implement innovations, as well as their absorption” (Niedzielski, 2011, p. 119), is a team game. Successful implementation of innovative ideas requires the leader to consciously create a team of people with specific competencies that are necessary to perform specific tasks, namely (Trias de Bes, and Kotler 2013):

- activators (initiating the innovation process),
- researchers (responsible for providing information to other team members throughout the entire process),

- creators (creators of new concepts and business opportunities, as well as other solutions at every stage of the process),
- developers (transforming processes into products and services, responsible for developing received ideas for ready solutions),
- executors (responsible for bringing the developed innovation to the market),
- facilitators (their task is to eliminate ideas that are too ambitious or of low potential, anticipating possible failures, undertaking the most promising ideas, encouraging the team to be active and supporting it with necessary resources).

Leaders of innovative teams know each other well. They are aware of their own discovery and performance skills, and at the same time understand the need to supplement their weaknesses with the strengths of others. Therefore, they make sure that the team has the complementary skills of its players. Complementary discovery, performance and mutual trust between employees are conducive to innovation. What is more, such a selection of team members means that they are more willing to share their knowledge and can learn from each other, which generates another synergy effect (Dyer, et al. 2012).

Questioning the status quo and willingness to implement a new idea undeniably means some change, which is always accompanied by risk and can naturally cause resistance from employees. For the effects of the change to be permanent, it is necessary for managers to have strong commitment and faith in the purposefulness of this process, to develop a precise plan for its implementation, the ability to assess the long-term risk of introduced changes, and knowledge of social processes that determine each change (Szczepańska-Woszczyzna, 2016). Nevertheless, studies on scientific research show that readiness to carry out the mission of carrying out changes and taking the risk for this change to take place requires courage (Drucker, 1994; Dyer, et al. 2012).

Operating in the conditions of dynamic changes both in the environment and in the company evoke new competence requirements, especially for the managerial staff. Hence, continuous improvement and improvement of professional qualifications of managers, due to the roles played by this group, is of a strategic nature (Białasiewicz, 2011). Popular managerial training methods include on-the-job training: job rotation, mentoring and coaching, as well as off-the-job training: standardized courses, conferences and lectures (Wyszecka, 2012).

The consequence of adjusting to the current needs in the field of creative education, as well as supplementing managerial competences in supporting business innovation is the enrichment of the existing didactic offer of many universities in Poland with new fields of study dedicated to future managers, e.g. interdisciplinary “Analysis and creating trends” at the University of Warmia and Mazury in Olsztyn³, as well as business practitioners, e.g. the project “Academy of Innovation Manager” under the patronage of the Polish Agency for Enterprise Development⁴, or the “Manager of Innovation” postgraduate course.

³ *Kierunek Analiza i Kreowanie Trendów*. Available online <http://uwm.edu.pl/trendy/>, 15.08.2019.

⁴ *Akademia Menedżera Innowacji*. Available online <https://www.startup.pfr.pl/pl/program/akademia-menedzera-innowacji/>, 15.08.2019.

Summing up the above considerations, it can be stated that the modern economy and its needs pose many challenges and tasks for company managers. Increasing requirements are associated with the need to have managerial competences that favour the creation and implementation of innovation. Therefore, there is a demand for managers-leaders who ensure stable development in uncertain market conditions. A manager in a knowledge-based enterprise should have highly developed communication skills (both to employees and business partners), develop employee talents, and motivate and contribute to innovation in the enterprise. The desirable traits and attitudes of modern managers include creativity, entrepreneurship, efficiency, courage and tolerance (Kubik, 2012).

This briefly presented overview of the literature and the identified research gap became the premise for an analysis of the issues of the roles, attitudes and the most important managerial skills in the process of creating innovation in young, knowledge-based companies – tenants of science and technology parks in Poland.

3. Research methodology and characteristics of respondents

The article presents selected results of a study conducted between 2017 and 2018 as part of a research project entitled “Foreign activity of enterprises located in science and technology parks in the Warmińsko-Mazurskie Voivodeship”⁵.

It was assumed that enterprises located in the S-TP area, which by definition is designed to support the innovation potential of companies and regions, are knowledge-based enterprises in which there are significant managerial attitudes and competences necessary for effective building of an innovative enterprise and successful implementation of innovations.

In order to recognize the manager's roles, attitudes and most important skills in the process of creating innovation in young knowledge-based companies, among all enterprises registered in the databases of science and technology parks in the Warmińsko-Mazurskie Voivodeship, entities that meet the following criteria have been distinguished:

- location of the enterprise: Olsztyn Science and Technology Park, Elbląg Technology Park or Science and Technology Park in Ełk,
- enterprise size: micro, small, medium enterprise,
- age of the enterprise: period of operation on the market not longer than 8 years,
- the basic type of activity characterized by technological intensity⁶.

⁵ Research project funded by the Ministry of Science and Higher Education as part of the programme “Rozwój młodych naukowców” at the Faculty of Economics of the University of Warmia and Mazury in Olsztyn. Research project no.: 22.620.011–300.

⁶ For the purposes of the study, the definition of young technology companies (new-technology based firms) has been adopted as those that have been on the market for no more than 5-8 years and operate in advanced technology sectors. Based on: J. Cieślak (2011) and Eurostat guidelines: (*High-tech industry...*), https://ec.europa.eu/eurostat/cache/metadata/en/htec_esms.htm, 08.08.2019.

An empirical study focused on obtaining primary data was conducted among top management representatives. The survey method was used, in which the research technique was applied in the form of an interview according to the developed questionnaire. In the interests of ensuring complete anonymity, company names are not disclosed. The presented results are for illustration only and cannot be used for generalizations. Nevertheless, they can be an inspiration to undertake in-depth studies of this subject, which the author intends to do in the future.

The study covered the entire population of 35 entities, obtaining permission from twelve companies, i.e. a level of nearly 34%⁷. Enterprises participating in the survey represent a group of small businesses. The largest share in terms of numbers is in the group of micro-enterprises (8), followed by medium (3) and small (1) businesses. These are young entities that have been on the market for 2 to 7 years. In addition, eight entities had previously conducted business activities (outside the science and technology park), which was conducive to acquiring business experience.

The basic type of respondent activity mainly concerns service (8), as well as production (2) and production and service (2) activities. The Polish classification of activities (PKD) indicates that these are entities representing the production industry with a medium-high level of technological advancement and technologically advanced knowledge-oriented services with high innovation potential.

It is encouraging that despite a relatively short period of operation on the market, the vast majority of enterprises have put into place new or significantly modified products (5 responses), technological or production processes (6 responses) and marketing or organizational solutions (3 responses), which makes them innovative enterprises. The number of significantly improved solutions outweighs the number of completely new ones in terms of product and technology (8 to 3). It is easier to introduce an improved product, changing some of its features and functions, than to completely develop an innovative solution. The advantage of improved solutions results from lower costs incurred by enterprises, as well as the attitude of managers to the absorption and imitation of pioneering solutions, most often from the most developed countries of the European Union. Managers' declarations also show that several process and technology improvements have been developed completely independently for their own production needs. In the two youngest companies participating in the study, research and development are currently being conducted to develop innovative solutions, and two other companies have not introduced innovation at all.

⁷ Two companies refused to participate in the study due to their privacy policy, while five entities started their business in S-TP in October 2017, so it can be assumed that their research and development and expansion activities are in the initial phase.

4. The research results

Because the surveyed enterprises represent a group of small business, the most frequently indicated number of managers is from 1 to 5. The age of managers in the surveyed enterprises ranged from 41-51 years (5 responses), 25-30 years and under 25 years (3 responses each) and over 51 years (1 response). Men most often spoke as managers (11). It is encouraging that eleven respondents with managerial positions in the surveyed enterprises had a university degree. Enterprises participating in the study focused on strengthening the potential of their most valuable resource – people, including by organizing employee adaptation training to perform new roles or acquire new skills useful in the dynamic environment of the organization. This constituted a high amount of their knowledge, skills and social competences that are directly intended to serve the success of these companies, as well as the timeliness of their knowledge, given the age of the respondents and the fact of graduating from universities and training in the near future. The professional experience indicated by the majority of respondents was from 7 to 15 years and over 15 years, which, in many cases, means the respondents' gained professional experience while studying at universities.

Surveyed managers correctly perceive their basic role in the enterprise as a person who is directly responsible for the implementation of the management process and a person responsible for managing activities leading to achieving goals and managing the resources of the organization. Importantly, none of the respondents even once indicated that they definitely did not identify with the role indicated in the questionnaire (Figure 1).

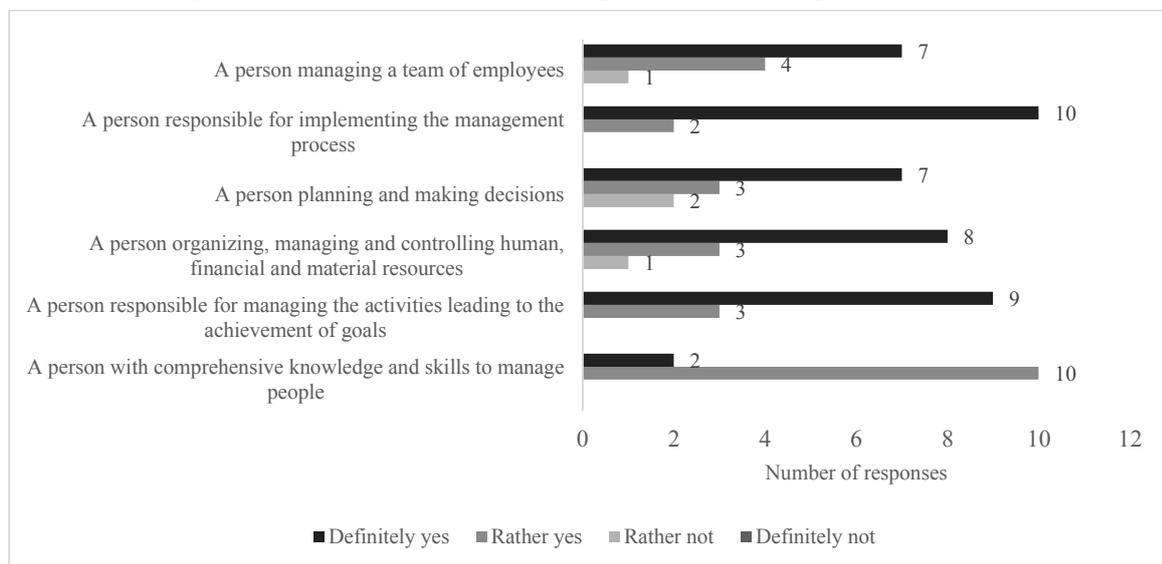


Figure 1. The degree of identification of the manager with the required role. Source: own study based on the results of the study.

Respondents' declarations indicate that they shape the attitudes of a pro-innovative leader. Managers with a vision and focused on teamwork inspire a team to cooperate, learn and share knowledge. They prepare an optimal plan to achieve the company's intended goal, organize the

necessary resources and ensure the best working conditions at the moment. They set the pace of work suitable for everyone and monitor employee progress and work discipline and determine the degree of employees' freedom of action by delegating empowerment.

Table 2.

Ranking of key roles and skills of a leader in managing people in a knowledge-based enterprise

Roles of a leader in managing people	Position
A leader lets others lead, make mistakes and shares knowledge	1
A leader monitors company progress, helps focus on a common goal, provides appropriate work tools	2
A leader sets the pace of work suitable for everyone, stimulates people to cooperate	3
Skills of a leader in managing people	Position
Having a vision	1
Planning and organization skills	2
Teamwork and cooperation skills	2
Motivating people	3

Source: own study based on the results of the study. Explanations: respondents were asked to indicate the three most important actions in the response cafeteria.

Awareness of the function and professional experience of people in managerial positions contributes to the successful conduct of the process of creating and introducing innovations. Key actions included in the roles supporting this process, along with the number of indications are presented in Figure 2.

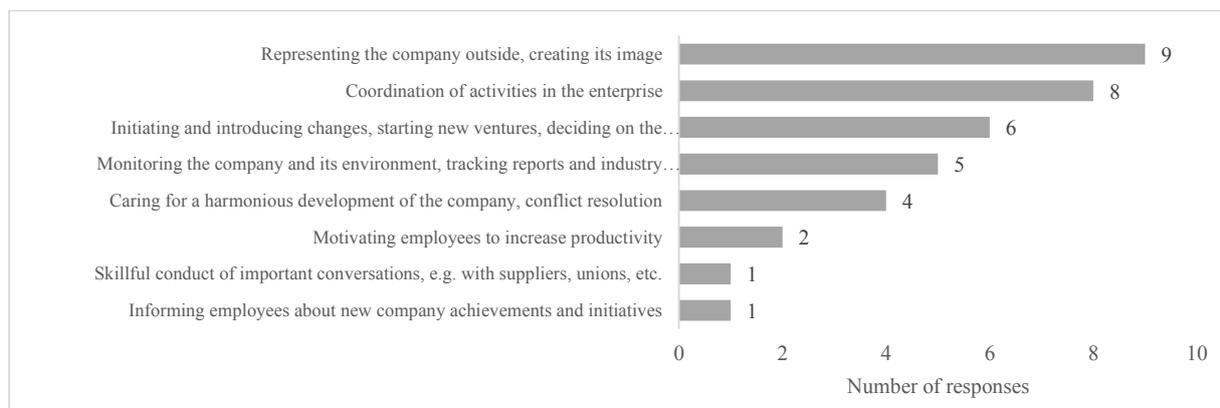


Figure 2. Key actions undertaken by managers to create innovation. Source: own study based on the results of the study. Explanations: respondents were asked to indicate the three most important actions in the response cafeteria.

The most valued role in introducing innovation is the interpersonal role consisting in professional representation of the company outside and creating its image, e.g. in order to acquire new business partners, participation in industry events on a national and foreign scale or to establish cooperation with scientific and research units. Managers' strong focus on establishing lasting relations with customers both in the home country and abroad is clearly visible (the offer is directed to the Polish and foreign market – mainly to European Union countries). This demonstrates the desire to recognize the needs and strive for the best satisfaction of them through the created value proposition. Studies have also shown that two

enterprises that do not cooperate with other entities to improve innovation have not introduced innovation at all (Figure 3).

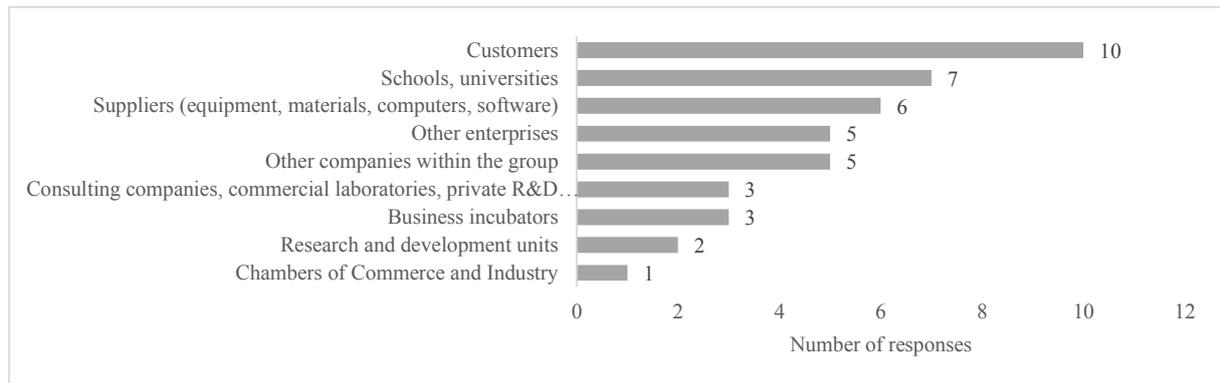


Figure 3. Cooperation with other entities to improve the innovativeness of the enterprise. Source: own study based on the results of the study. Explanations: the answers do not add up because the respondents could choose more than one answer.

No less important is the manager's decision-making role, manifesting itself as coordinating activities in the enterprise, as well as initiating and implementing changes, launching new ventures, or deciding about the optimal distribution of limited resources of the company. The least frequently mentioned pro-innovative actions taken by managers include those of an informative nature, limited to the correct transmission of information obtained, without measurable effects of their use.

As the skills created in the employment relationship in a managerial position, which are to support the process of creating innovation, respondents most often indicated those of a conceptual and diagnostic nature: recognition and delivery of the value clients seek in the product or service offer, as well as understanding how to work in a company. It is important to design the most appropriate response in a given situation and make a sound decision. Interpersonal skills are also important, particularly the ability to establish and maintain inter-organizational relationships. The ranking of key skills clearly indicates that managers make every effort to create a pro-innovative atmosphere in an organization by ensuring effective communication and developing employee initiatives (Figure 4).

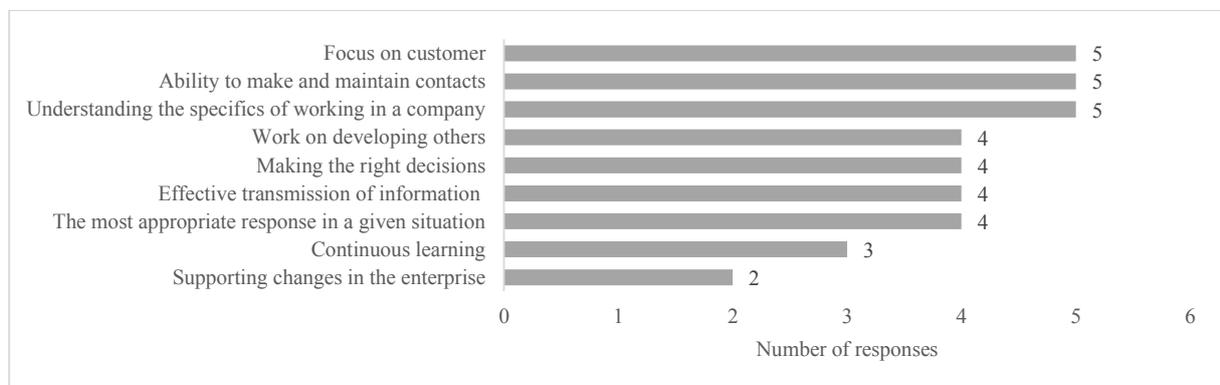


Figure 4. Key managerial skills used in the process of creating innovation. Source: own study based on the results of the study. Explanations: respondents were asked to indicate the three most important actions in the response cafeteria.

Managers, who are the initiator of changes, clearly indicated that the most effective style of management is one that puts a lot of emphasis on tasks and interpersonal relationships. This choice is also due to the evolution of thinking and management practice of managers who have permanently rejected the task-oriented model.

Although technical and analytical skills are extremely important, managers – as their team's ambassadors – express the belief that the key to shaping the positive potential of organizations, i.e. people, is the skill that reflects emotional intelligence. It manifests itself, among others, as good cooperation with others, stimulating the group to joint effort, utilizing employees' talents and effective introduction of changes. Respondents are unanimous in favour of sympathy for their subordinates and highly value cooperation with them (6 responses for very good and good cooperation), while the right atmosphere at the workplace contributes to the increase in employee efficiency and their loyalty to the company.

Surveyed managers note that employees understand and do not object before introducing changes in the company, but sporadically these changes cause clear opposition among employees. To remedy this, the following methods are used to minimize the resistance of subordinates: re-explain to the subordinates the essence of the change (8 responses), propose fuller employee participation in a given project, negotiate and arrange the work procedure with the crew (2 responses each). With these measures, the manager can create an attitude evoking security and trust. Trust creates the feeling that the company is developing in the right direction, arouses optimism of expectations and the belief that something good will happen that will positively affect the future of the company. However, financial motivation or extortion of consent for changes is incidental (1 response each).

5. Conclusions

The modern economy and its needs pose many challenges and tasks for company managers. Increasing requirements are associated with the need to have managerial competences that favour the creation and implementation of innovation. Therefore, there is a demand for managers-leaders who ensure stable development in uncertain market conditions.

The conducted research showed that despite a relatively short period of operation on the market, the vast majority of enterprises who took part in this study have implemented new or significantly modified products, technological or production processes, as well as marketing or organizational solutions, which makes them innovative enterprises. At the same time, the number of significantly improved solutions outweighs the number of completely new ones in terms of product and technology.

Achieving such effects was possible thanks to the involvement of the entire team led by the manager-leader in the process of creating innovation.

Surveyed managers correctly perceive their basic role in the enterprise as a person who is directly responsible for the implementation of the management process and a person responsible for managing activities leading to achieving goals and better management of the resources of the organization.

Respondents' declarations indicate that they shape the attitudes of a pro-innovative leader. Managers with a vision and focused on teamwork inspire a team to cooperate, learn and share knowledge. They prepare an optimal plan to achieve the company's intended goal, organize the necessary resources and ensure the best working conditions. They set the pace of work suitable for everyone and monitor the progress of employees and the discipline of work, they also determine the area of freedom of action of employees by delegating permission (empowerment).

The most valued role in the aspect of introducing innovation is the interpersonal role and the decision-making role of the manager. On the other hand, as the pro-innovation skills created in the employment relationship in a managerial position, the respondents most often indicated conceptual and diagnostic skills.

Managers, who are the initiator of changes, have clearly indicated that the most effective style of management is the one that puts a lot of emphasis on tasks and interpersonal relationships.

The study shows that surveyed managers are aware of both their own limitations and the difficulties and great responsibility associated with managing a knowledge-based organization in current market conditions. Nevertheless, people employed in managerial positions in young, knowledge-based companies - tenants of science and technology parks, properly identify with the attitudes required from them, comprehensively identifying with the interests of the organization and shaping the attitude of a manager in the 'knowledge era'.

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