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COMPETENCE APPROACH IN AGILE TRANSFORMATION OF EDUCATION ESTABLISHMENT

Abstract: The subject of the article is development of project, programs and project portfolios management systems with drivers of innovation in Agile transformation of Education Establishment is considered. Substantial changes in the environment require further research into the effectiveness of the application of existing agile methodologies, knowledge systems and competencies of project managers and their leadership. The foundations of environmental change lie in changing the decision-making paradigm in innovation project and programs management in Agile transformation of Education Establishment. The goal is to explore modern approaches to leadership formation when applying agile methodologies of its specificity from the point of view of decision-making processes in project management. The problems of leadership creation and development in the application of agile project management methodologies for the implementation of information and communication systems are considered. The results of studies were conducted on the basis of a competency-based approach modelled by the International Project Management Association. The content model of competency of the leader applying agile management is presented. **Conclusion:** The Agile leadership and leadership behaviour patterns are formed in a project management behavioural competency system based on agile technology methods and tools. These competencies included: Self-reflection and self-management, Personal integrity and reliability, Personal communication, Relationships and interaction, Leadership, Teamwork, Conflicts and crises, Inventiveness, Reconciliation, and Orientation to results. The patterns of project managers' behaviour as agile leaders in project product creation and agile project management are explored. The differences in the behaviour patterns of leaders and agile leaders were examined by behavioural competencies within the identified key competency indicators. Such patterns allowed the authors to identify bottlenecks in the application of agile project management methodologies in the context of the development of innovative products of innovation systems.

Keywords: leadership, agile management methodologies, project, competence, behaviour pattern, project manager, agile transformation.

Introduction

The fast-paced world needs a new kind of leader and leadership. This thesis emphasizes the dynamism and innovative orientation of projects and programs for the development of organizations based on the introduction of information and communication technologies. As the world transforms rapidly, a new generation of leaders is needed. That is individuals who are able to respond quickly to technological innovation, changing social relationships and creating new businesses and technologies for project implementation in Agile transformation of Education Establishment. The challenges faced by Education Establishment in the development and implementation of information and communication technologies are becoming more complex than ever before. Thus, the application of proven best practice is no longer a way forward. The world has realized that planning everything in advance makes us tough, not Agile. When a project begins to focus on what is valuable to our clients, we need to make use of the best practice. Complexity and uncertainty also require another form of control. Responsibility will now be manifested at lower levels within the organization. Decision-makers are increasingly being held accountable to experts, and leadership is being replaced by leadership at all levels of the organization. This means that more and more project teams are choosing a holocratic, one-tier structure and principles of activity [14]. One of the answers to these challenges is the economically agile work with innovation, an important part of how we organize our activities. Increasingly, organizations are adopting a value approach and are learning to distinguish between what is valuable and what doesn't matter is a development that has been going on for the last decade [6]. Many organizations have taken the first, sometimes bold, steps in a cost-effective transition to becoming more adaptable to the environment. Today, there are practically no organizations that do not apply (at least at an intuitive level) Agile project and program management methodologies. Education Establishment already have experience with agile methodologies know that more than just sending people to training is needed. They understand that agile methodologies are easy to learn but difficult to put into practice. In this case, we need specialists who lead the overall learning process and inspire employees in their organization to adopt agile thinking.

An analysis of recent research and publications shows that leaders in agile organizations are embracing change, and this has implications for the strategy they use to achieve their goals and vision. Vision is more like a "blurry spot" on the horizon than a "clear spot". With an agile strategy, organizations can take advantage of opportunities and avoid threats. Agile executives and leaders understand that such a strategy is blurry and is an early stage, a tool to make sense of the work being done by the organization [1, 15].

An increasingly complex world and an uncertain future present organization with enormous challenges. On the one hand, they have to deal with waste as much as possible (the philosophy of thrift), and at the same time, they have to become more mobile. The latter is only possible if people are also universal [2].

Today, there are new ways of working on project product creation, in which decision-making is as close to implementation as possible and as late as is justified by the tight deadlines of project and product lifecycles in their implementation. Agile management is focused on creating a balanced value, not a planned schedule. The work is performed in the form of short cycles, instead of implementing a waterfall approach, and constant attention is paid to development and quality [12].

While there are framework models that provide some direction for the development, each organization has its own interpretation of agile work. Agile working is a philosophy, it is the foundations that support such a philosophy. Instead of adopting agile methodologies, people become Agile and this requires a fundamental change in thinking and leadership. Thus, even plan-oriented projects can also benefit from flexibility [6].

Flexibility determines the way in which the structure of the organizations themselves changes greatly. In this case, each form has its own frame of reference or development paradigm. Modern organizations no longer share power from top to bottom, but associate it with specific roles in such a way that there is a significant level of correction. An example is a transition to flat organizational structures with holocratic management. It is difficult for leaders who apply different development paradigms to share ideas with each other. Therefore, the agile leader should be able to move freely between these paradigms [10].

Loss prevention, cost savings and value creation do not stop at the boundaries of a team or organization. Agile executives know and take into account the context in which they function. Accordingly, compliance with laws and rules is a must for the leader. In addition to complying with laws and regulations, they are also aware of the interests of society [12].

Agile teams promote the culture and values in which participants enter into agreements with each other about how they will interact. They encourage individual members to adhere to this and do not always allow their personal interests to prevail.

Non-force interaction is the basis of agile leadership. If force is used, it is done with caution. If there is such a thing as power, it exists to serve a variety of stakeholders in the organization's activities. This does not mean that an Agile leader allows himself to apply pressure in all directions; on the contrary, it should provide influential and inspiring leadership [2].

Different influences and interests ultimately lead to equilibrium, and the agile leader unites the team rather than divides it. This can only happen when it demonstrates a genuine and honest interest in various stakeholders. The leader approaches differences with curiosity and thus develops the necessary sensitivity to engage those parties with him in agile thinking.

Culture is the result of the lessons learned by the organization over its lifecycle. This is the way she defends her core values. An organizational culture that is embedded in one (or sometimes several) national cultures (s) protects the organization against threats and ensures stability. Culture itself often changes complexity and, therefore, switches to agile methodologies [13]. Changing a leader is therefore almost always a devastating process. A leader who shapes Agile culture (change) is more important than processes and structures, by its nature assumes an exemplary role for the promoters of that culture. Various Agile structures also relate to values such as commitment, courage, and focus on values, openness and respect. The basic, often unconscious, underlying assumptions within an organization do not always reinforce each other. Culture is changing gradually. It is not self-evident that everyone is comfortable with these changes. People leave the organization and new members join. Every Agile leader takes this into account.

The purpose of the article is to discuss the problems of forming and supporting leadership in the application of agile project management methodologies for Agile transformation of Education Establishment.

The research methodology

The competence approach is based on two concepts:

- competence is an area of activity or function performed by an employee;
- competence is a characteristic of a potential employee's ability to perform successfully within certain competencies [13].

Modern organizations are facing an urgent task: to unlock the competent potential of specialists in full, which is extremely important for making the right management decisions and conducting reliable expertise in the course of project implementation. However, it should be remembered that for every employee who develops his career in the organization, such development is, on the one hand, a motivating factor, on the other – a threat. In doing

so, each employee is expected to learn how to manage and develop their own competencies through Agile leadership. Successful implementation of innovative projects and programs for the creation of modern information and communication technologies is ensured by the creative application of a competent approach. This approach can be used as a common communication language that brings together the organization and employees, tasks and executives through agile leadership. In this case, the development of the organization and the development of staff occur at the same time. Personality develops when interacting with people. Some recognize themselves in relation to others. Reflecting, we study the impact of our behaviour on others. The tension that sometimes arises motivates us to adapt, which is a value of self-management. Thus, this element of competence is the basis by which a person develops individual flexibility [13].

An agile leader has a growth mindset, a conviction that he or she can grow further because of the competencies he or she develops within the organization. This mentality is the responsibility of the individual, who must act on the basis of his or her motivation and not through external pressure. The focus is on each person's personal development. In fact, there is an expectation that everyone will take these leadership behaviours. That is why it is important to provide workable levels of stress, and this work is an important source of happiness [3].

It is clear that an agile leader will act in accordance with his or her own internal motives, thus retaining his or her personal integrity. Empowering team members to do the same (act on internal motives) makes it reliable and inspiring. Nothing is more unpleasant than a leader who imposes agile methodologies but does not operate according to agile principles. The agile leader's professional values are rooted in agile thinking. Therefore, ethical behaviour operates in accordance with agile principles. The choice of agile methodologies means that management will accept its employees as they are unconditional. After this choice, managers should demonstrate agile leadership and leadership. This means that team members are given resources to do their jobs. In addition, the overall interest of the team must take priority over the individual interests of its members. Only then will the management be credible and reliable.

One of the principles of agile work is the joint creation of project and program products. Therefore, personal communication is the most rational and effective way of sharing information with and within the team. This makes conversation the most important form of communication. The Agile leader does not represent but supports a group and creates a social network where people meet and talk to each other. This is one of the main tasks of an agile leader. It requires everyone to be actively present in the conversation, thereby limiting misunderstandings and making it debatable. Leaders set the example. Since it is not self-evident, it is not taken for granted. In doing so, it communicates to each other in a non-violent way because of certain behaviour. This creates an open space in which each person is involved in the process and can be present [1].

Open attitude to people and events makes information freely disseminated within the organization and leads to a flourishing relationship between team members. It is necessary to ensure self-determination and flexibility. Everyone in the organization must have the right information at the right time to make an empirically sound decision.

Openness is the clarity and transparency of the project and organizational goals to be achieved, the results and evaluations of progress. It is about mutual cooperation and agreements, as well as the beliefs and fears of individuals who influence relationships. Openness means giving transparency and asking questions while postponing judgment. It creates trust and privacy. Agile leaders are an example to follow. Self-knowledge enables one not to follow one's selfish needs to dominate one another. The ministries and aspects of relationship management must be in balance [5].

Self-management is effective when it is possible to use people's intrinsic motivation. This includes ensuring adequate organizational security of activities, removing obstacles and facilitating work. When people feel autonomy, power and purpose, they can give most of themselves. Developing this capacity is an important success factor for agile leadership.

An agile organization is a social network that in turn leads to self-observation. The composition of this network is dynamic, but people make clear agreements about how they work together. Agile leaders give direction to part of the network, but not as a helper, not as a ruler. They build relationships in which the other creates an understanding of what is happening around him or her to make his or her own functioning online more valuable. This increases the social capital of an agile organization [12].

There is a difference between a manager and a leader, a manager has a hierarchical position, a leader has some skills to motivate people and, moreover, to get things moving. In this element of competence, leadership is defined as a characteristic, not a managerial function. Many people can demonstrate leadership, but only some are managers.

Agile is based on equality, autonomy and self-determination. Personal leadership of people in such an environment is critical to choosing direction, motivation, and encouraging people so that they can achieve the desired organizational goals. The leader takes the position of assistant, whose interests are central to the group or organization. The leader does this primarily by setting an example and helping build relationships with, or work with, the people he leads. The degree of self-determination a team receives depends on their skills and abilities. Leadership quality is determined by the level of integration of specific team members to achieve project goals. An agile leader is one who proactively removes obstacles and allows teams to deliver value [8].

Within an Agile organization, we focus on collaboration between individuals, teams, and clients. Team members are partners, not employees. Self-study groups play a crucial role in an Agile organization. Each team has its own goal, but its priorities are to always benefit the organization and its customers. This is manifested in trust, conflict resolution skills, commitment, accountability and commitment to common goals, and the willingness of individual team members to work flexibly. Without being imposed from above, they share certain goals and constantly make agreements about how they work with one another. This does not prevent the agile leader from challenging the team to continually improve [9].

Together, the team members have all the experience and skills to achieve the project's goal. Preferably, individual members are interdisciplinary, so teams are more independent, not very large, and therefore more agile and responsive. They challenge each other, share knowledge and teach each other, which makes them more deployable and Agile. For optimal team collaboration, diversity, as well as the different characters of team members, is an important factor.

An Agile leader takes care of a supportive work environment and holds the right types of meetings and workshops. During them, be it stand-up meetings, seminars, large-scale discussions, etc., he assumes a neutral position as a facilitator.

Conflicts arise within the team, but also in collaboration with other groups and stakeholders. Where people work together for a longer period of time, conflict is a means of strengthening relationships, perceived as inevitable, and seen as an opportunity to learn.

To turn conflict into a constructive channel, the agile leader provides an environment in which conflicts can be used to benefit the team. That is, they agreed in advance how the differences are motivated when they arise. Sometimes Agile principles and how they are used in everyday practice become a source of conflict. An agile leader encourages people involved to find common ground. As a result, the team develops their own conflict resolution skills.

Despite all preventative measures, it is sometimes impossible to avoid a crisis. Every crisis is a situation that requires optimal flexibility. The team looking back on its collaboration from iteration to iteration will also be well prepared for the next crisis. However, this is not enough; The threat of crisis requires a thoughtful critical plan. At the end of the crisis, there will be a need for a retrospective [12].

The ingenuity of agile work is expressed in the delivery of results with limited resources. The phrase “resourcefulness, not resources” is a great expression of this. Initially, people and teams look for the solutions or resources they need without expecting others (such as senior management). Agile leader stimulates creativity. For example, it does this by working in a safe environment where people can experiment, in addition to using known technologies. It is also inferior to people with different views that violate existing patterns in order to promote group blindness [1].

In particular, self-learning organizations expect individuals and teams to agree on solutions when there are differing views. This requires negotiation skills. The agile leader facilitates this process. Negotiations also aim to maximize the balanced value for all stakeholders. It is important to remind different parties of this over and over again.

In an Agile environment, people have to negotiate on various issues. Initially, the organization has different ideas about what “Agile work” is. Where an agile leader plays a facilitating role, he or she must constantly negotiate how to do it in this particular situation. Collaboration style is better than forcing style. There is no single approach, but an individual approach must be developed for each new task. This is done through negotiation. The solutions found to define a new agile culture [4].

The result orientation is obvious because the agile organization operates cyclically for a short period of time (iteration) and must achieve results at a continuous pace. The context in which an organization operates is determined by several ways in which it can manifest itself. Determined planning-oriented projects can benefit from this approach by delivering results at each iteration [10].

The work environment (Gemba) should give people maximum support in creating project products. In addition, employees create working conditions from which they constantly adjust the standards to higher levels. This stimulates the agile leader. In this way, a continuous improvement process is created that helps to achieve maximum productivity [9].

Agile leader, aware of the purpose and potential of the organization, contributes to the formation of effective new teams and increase the effectiveness of existing teams. The leader builds a network of business relationships that support their own virtual organization.

Research results. Agile leadership in implementing innovative ideas, projects and programs

The studies were conducted within the competence model of ICB4 [13]. Agile leadership is shaped by many factors and within behavioural competencies [13]. The list of such competencies of heads of organizations, project managers and flexible leaders is given in Table 1.

Table 1. Behavioural competencies of an agile leader

| Nº | Competencies |
|----|-------------------------------------|
| 1 | Self-reflection and self-management |
| 2 | Personal integrity and reliability |
| 3 | Personal communication |
| 4 | Relationships and interaction |
| 5 | Leadership |
| 6 | Teamwork |
| 7 | Conflicts and crises |
| 8 | Conflicts and crises |
| 9 | Ingenuity |
| 10 | Harmonization |

The studies were conducted on the basis of assessors' assessments and self-assessments of a group of project managers who have been internationally certified under the ICB4 model by key KCI competence indicators, which form the basis of the competency assessment model. The results of the study are shown in Fig. 1.

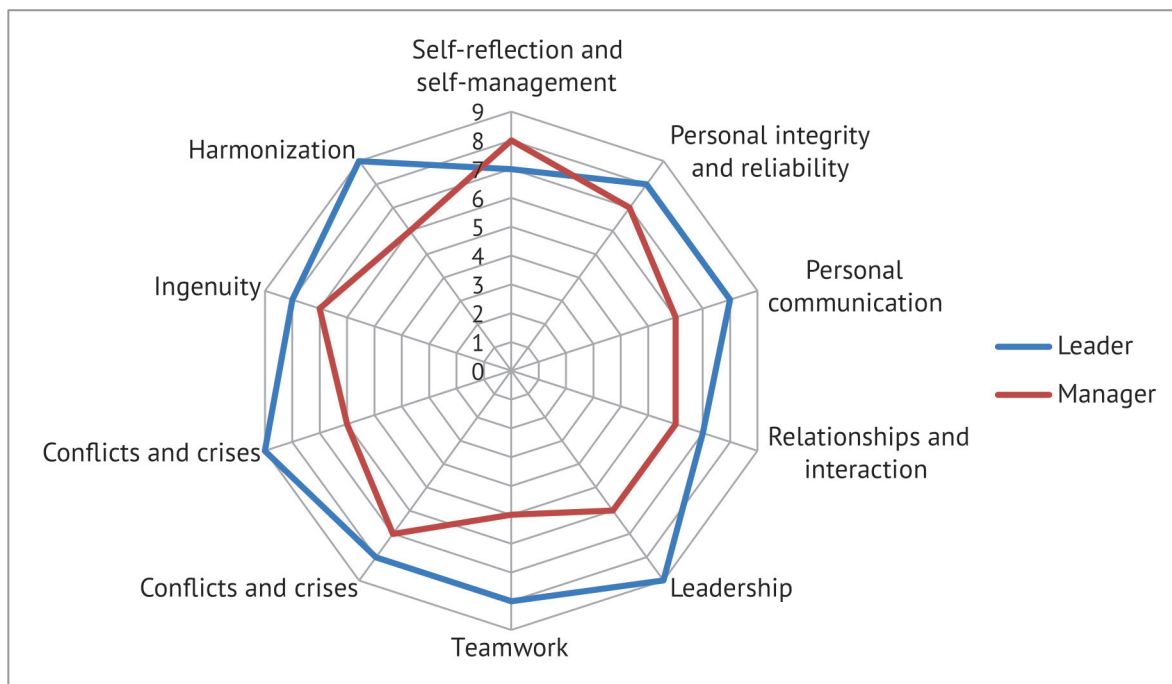


Fig. 1. The patterns of behaviour of a flexible leader and leader in behavioural competencies

The study involved 10 professionals who have been certified by the model ICB4 [13]. Individual assessments of flexible leaders 'and leaders' behaviour patterns were obtained.

Table 2. Expert assessments of the Flexible Leader's behavioural competencies

| Agile leaders. Competencies | Experts | | | | | | | | | | Average | Variance |
|-------------------------------------|---------|----|----|----|----|----|----|----|----|----|---------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Self-reflection and self-management | 6 | 7 | 8 | 8 | 6 | 6 | 8 | 6 | 7 | 6 | 6,8 | 0,92 |
| Personal integrity and reliability | 8 | 9 | 8 | 8 | 8 | 9 | 7 | 7 | 8 | 6 | 7,8 | 0,92 |
| Personal communication | 9 | 7 | 8 | 8 | 9 | 8 | 8 | 8 | 7 | 8 | 8 | 0,67 |
| Relationships and interaction | 8 | 9 | 8 | 8 | 6 | 9 | 9 | 8 | 8 | 8 | 8,1 | 0,88 |
| Leadership | 10 | 9 | 9 | 9 | 10 | 10 | 10 | 9 | 10 | 10 | 9,6 | 0,52 |
| Teamwork | 9 | 10 | 9 | 8 | 9 | 8 | 8 | 9 | 10 | 9 | 8,9 | 0,74 |
| Conflicts and crises | 8 | 9 | 8 | 8 | 9 | 10 | 9 | 8 | 9 | 9 | 8,7 | 0,67 |
| Ingenuity | 10 | 10 | 9 | 10 | 9 | 9 | 10 | 10 | 9 | 10 | 9,6 | 0,52 |
| Harmonization | 8 | 9 | 8 | 8 | 7 | 8 | 8 | 9 | 7 | 8 | 8 | 0,67 |
| Orientation to the result | 10 | 9 | 10 | 9 | 10 | 8 | 10 | 9 | 9 | 8 | 9,2 | 0,79 |

The average values of competency scores were taken as the basis for constructing the flexible leader's behaviour pattern, which, together with managers' assessments, is shown in Fig. 1.

Table 3 presents expert assessments of the behavioural competencies of the heads of organizations.

Table 3. Expert assessments of the Leader's behavioural competencies

| Leaders. Competencies | Experts | | | | | | | | | | Average | Variance |
|-------------------------------------|---------|---|---|---|---|---|---|---|---|----|---------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Self-reflection and self-management | 9 | 7 | 8 | 8 | 9 | 9 | 7 | 8 | 7 | 8 | 8 | 0,82 |
| Personal integrity and reliability | 7 | 8 | 7 | 7 | 8 | 6 | 8 | 6 | 6 | 7 | 7 | 0,82 |
| Personal communication | 6 | 7 | 6 | 5 | 6 | 5 | 7 | 6 | 5 | 6 | 5,9 | 0,74 |
| Relationships and interaction | 6 | 5 | 7 | 5 | 6 | 6 | 5 | 6 | 7 | 5 | 5,8 | 0,79 |
| Leadership | 5 | 6 | 6 | 7 | 5 | 5 | 7 | 7 | 6 | 7 | 6,1 | 0,88 |
| Teamwork | 6 | 5 | 5 | 4 | 6 | 4 | 6 | 4 | 5 | 4 | 4,9 | 0,88 |
| Conflicts and crises | 7 | 7 | 6 | 7 | 8 | 6 | 8 | 6 | 7 | 7 | 6,9 | 0,74 |
| Ingenuity | 6 | 6 | 6 | 5 | 6 | 6 | 7 | 5 | 6 | 6 | 5,9 | 0,57 |
| Harmonization | 7 | 7 | 8 | 8 | 7 | 6 | 6 | 8 | 7 | 6 | 7 | 0,82 |
| Orientation to the result | 6 | 7 | 6 | 6 | 6 | 6 | 5 | 6 | 7 | 6 | 6,1 | 0,57 |

From the results of competency assessment, we can see that practically all the elements of competence of flexible leaders with the exception of "Self-reflection and self-management".

Key indicators of the competence of the self-reflection element and the self-leadership of the flexible leader are given in Table 4.

Table 4. Key Indicators of Competence of the Self-Reflection and Self-Governance Element

| Nº | Key competency indicators |
|------|---|
| 1.1. | Defines and reflects on how one's own values and experience affect work |
| 1.2. | Creates self-confidence based on personal strengths and weaknesses |
| 1.3. | Defines and thinks about personal motives to set personal goals and focus |
| 1.4. | Organizes personal work depending on the situation and own resources |
| 1.5. | Takes responsibility for individual learning and development |

The conducted analysis of the competence of a leader and a leader in a sample of 20 persons allowed the authors to construct patterns of their behaviour, which are shown in Fig. 2.

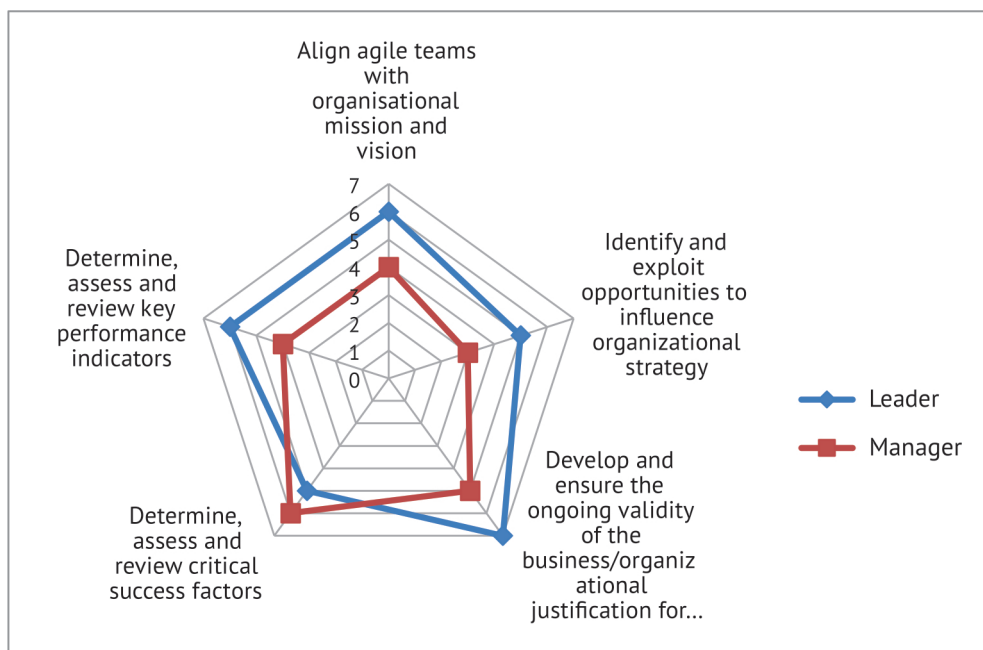


Fig. 2. Behavioural Patterns of Flexible Leader and Leader in Self-Reflection and Self-Management

Table 5. Key Leadership Indicators of Competence

| Nº | Key competency indicators |
|-----|---|
| 5.1 | Initiates action and actively offers help and advice |
| 5.2 | Participates and shows affection |
| 5.3 | Provides leadership, coaching and mentoring for leadership and enhances individuals and teams |
| 5.4 | Make appropriate efforts and influence others to achieve goals |
| 5.5 | Facilitates enforces and reviews decisions |

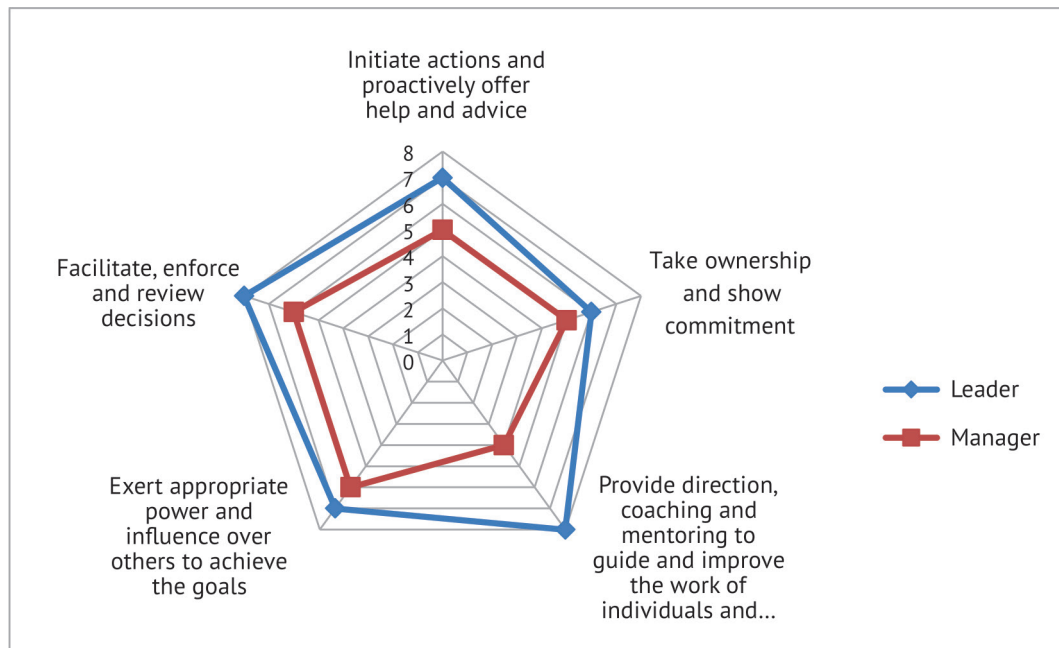


Fig. 3. Flexible Leader and Leader Behaviour Patterns

The analysis of the flexibilities of the Flexible Leaders and Leaders behaviours identifies significant gaps incompetence across individual key competency indicators. For example, in the Leadership competency element by key competency indicator, 5.1. Provides direction, coaching and mentoring for leadership and enhances the work of individuals and teams. "There is a significant gap between the Flexible Leader and the Leader (Fig. 3).

Conclusions and prospects for further research

As a result of the study, the principles of flexible leadership based on the use of agile tools were identified and analysed. The application of these principles to the development of project management systems, programs and project portfolios enables the success of information and communication technology projects on the basis of well-formed behaviour patterns of flexible leaders and heads of organizations. The flexible leadership and leadership behaviour patterns are formed in a project management behavioural competency system based on agile technology methods and tools. These competencies included: Self-reflection and self-management, Personal integrity and reliability, Personal communication, Relationships and interaction, Leadership, Teamwork, Conflicts and crises, Inventiveness, Reconciliation, and Orientation to results. The results of the studies showed a significant difference in the behaviour patterns of flexible project leaders and organization leaders.

Further research should be conducted in the areas of analysis of all competencies of project managers, including groups of strategic and practical competencies by model [13]. In doing so, it would be necessary to investigate the differences in the patterns of flexible project leaders and heads of organizations for different project teams to create information and communication technologies and training systems within such technologies.

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