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Abstract of doctoral dissertation

The dissertation topic is: *Determinants that support the functioning of employees in an agile work environment.*

Modern organizations operate in a turbulent, dynamically changing, and therefore unpredictable environment. According to R. Krupsky, the main environment-related factors currently affecting companies are, first and foremost, the globalization of markets, the development of new technologies, the increasing consolidation of businesses, and social changes. At the same time, increasing attention is being paid to ecology, growing economic unrest, and changes in the political map of the world. J. Kisielnicki, argues that changes "are either an opportunity for development or a threat to the organization. The organization, to last and develop, must observe these changes". According to H. Wlodarkiewicz-Klimek, enterprises, wishing to compete effectively in an unpredictable market, must adapt their structure and rules of operation to constant uncertainty, short-term opportunities, and non-standard behavior of competitors". Volatility in the business environment has a direct impact and is crucial to the formation of strategy, structure, and organizational culture. Accordingly, the adaptability of organizations, related to the ability to adapt to changes in the environment, to respond quickly to customer demand, to react quickly to competitive actions, and to be flexible and innovative, is becoming particularly important in today's reality.

One of the answers to the above-mentioned challenges facing modern organizations is the introduction of agility, manifested primarily as the organization's ability to monitor the business environment and recognize the opportunities and threats flowing from it. According to A. Kozarkiewicz and P. Paterek, "agile methodologies are increasingly used in project management practice, primarily in companies in the IT and ICT sectors, media, advertising, and other creative industries. The universality of implementation, the increasingly wide range of methodologies defined by the term "agile methodology", and the development of certifications, training, and workshops dedicated to popularizing the principles of agile project management raises a growing interest in this category of methodologies - both on the part of companies looking for new ways to be effective and fight the competition, and researchers looking for new and cognitively interesting topics for research and analysis". At the same time, it is worth noting that, as shown by numerous research results in the literature and industry reports, the introduction of agile work methodologies in the management practice of organizations is often a key element of their competitive advantage.

The first applications of agile methodologies in organizations took place in IT projects related to software development, therefore, the author assumed that in the IT industry, agile teams have the most constituted methods, systems, and techniques of work, and it is from their experience that it is worth drawing good practices. For this reason, the IT industry is, in the author's opinion, the clearest representation of the application of agile methodologies in organizations. In addition, it is noteworthy that the IT industry, by creating technological

solutions to support other industries, is crucial to other industries. "A review of the scientific literature, as well as the publications of consulting companies, indicates that the IT sector is classified among the modern sectors of the economy, which already today, and especially in the coming years, will significantly contribute to the creation, as well as the implementation of innovations at the level of processes, products and services". The IT sector, "assigned to the innovation sectors of the new technology sector, must respond quickly to changes in other economic sectors and participate, as a technological advisor, in updating the business models of its clients. It is not insignificant that other sectors of the economy are increasingly raising expectations of the IT sector in the area of co-participation in research and development and the search for innovation at both the process and product levels". At the same time, industry reports show that the IT industry faces development barriers in the form of difficulties in attracting qualified specialists and retaining them in the organization for the long term. Eliminating development barriers can improve the performance of organizations operating in this industry.

In this dissertation, the author has adopted the perception of an organization through the prism of a system. According to J. Karcz, "the system approach was important for the development of the theory of organization and management because it indicated the need to treat the organization holistically, and not to study only its fragments. The open system concept proved to be crucial, thanks to which the influence of the environment on the organization was taken into account. Also important is the division of the organization into social and technical subsystems. The systems approach has also undoubtedly contributed to the development of modeling and simulation techniques. It is also important to point out the practical application of the systems approach to the diagnosis and design of organizations". According to J. Stoner, R. Freeman, and D. Gilbert Jr., "the system's direction, instead of dealing with individual segments of the organization separately, treats it as a unified, purposeful system made up of interrelated parts. This allows the manager to look at the organization as a whole, which is also part of the broader external environment. It follows from systems theory that the activities of any segment of an organization more or less affect the activities of every other segment of the organization". Following the idea of the systems approach, the author assumed that the essence of the effective functioning of an organization is such interaction of its various elements that the goals set for it can be achieved and that the elements of which the organization is composed are in mutual relations to each other and have a significant impact on each other. Thus, the organization is seen as a system that is an interaction of the social and technical spheres. Referring to the words of M. Bielski, in an organization perceived as a socio-technical system, there is a meeting of two worlds: the indeterministic social world (represented by the social sphere of the organization), burdened with considerable uncertainty, resulting from the subjectivity of each person, which is difficult to predict, and the deterministic technical world (represented by the technical sphere of the organization), predictable, easy to describe and analyze due to compliance with the laws of nature and technology.

The author of this dissertation, made a critical analysis of the literature in the field of management, in particular, organizational management from a systemic perspective, and in the field of work psychology, in particular, concerning environmental psychology, which corresponds to the theory of human-organizational fit, and which allowed her to assume that behind the success of any enterprise is, on the one hand, a person who has individual rational and emotional resources (a key element of the social sphere of the organization), on the other hand, the social and technical organizational solutions that support him. Consequently, all

elements of the system should be compatible with each other. This is consistent with the concept of human-organizational fit derived from the field of labor psychology. According to A. Kristof, both parties, the organization and the employee, have certain resources they are willing to offer, as well as expectations they require to be met. Both resources and expectations flow from the general characteristics of the organization and the person, which consist of professed values, goals, and norms of action. The mutual fit between the employee and the organization can largely translate into their intrinsic motivation. Therefore, it can be assumed that "if employees are properly motivated it results in the fact that a range of positive behavior is visible in them, which positively translates into the results of their work". The mutual fit between the employee and the organization can also translate into his effectiveness in the work environment and a sense of job satisfaction, which will affect the desire to stay in the organization for the long term.

Accordingly, the author, while critically analyzing the literature on the subject, aimed to find an answer to the question of what determinants support the functioning of employees in an organization. The first inspiration came from the systems approach to the organization, which makes it possible to take a holistic view of its functioning and thus avoid focusing only on individual parts of it. Accordingly, the organization was considered in terms of a socio-technical system - with a particular focus on the elements of the technical and social sphere of the organization, potentially supporting the functioning of employees. The second inspiration for the search for determinants that support the functioning of employees in an organization came from the theory of human-organizational fit. Due to the key role that a person plays in an organization, a detailed analysis of his functioning was carried out - with a special focus on the rational and emotional resources that he brings to the organization and that support his functioning. This activity led the author to the identification of four main areas that make it possible to analyze the determinants that support the functioning of an employee in an organization, taking into account the mutual influence of man on the organization and the organization on man, which directly translate into his functioning in a specific work environment:

1. T - the area symbolizing the technical sphere of the organization,
2. S - the area symbolizing the social sphere of the organization,
3. R - the area symbolizing a person's rational resources,
4. E – the area symbolizing a person's emotional resources.

For each area, based on a critical analysis of the literature, characteristics and key categories of resources were identified, which consist of determinants, called for this dissertation - **homogeneous determinants**, potentially supporting the functioning of employees in the organization.

Concerning the mutual influence of the different areas on each other, the author determined six planes of potential fit between the different determinants from different areas from T, S, R, and E, which leads to the identification of **hybrid determinants**, potentially supporting the functioning of employees in the organization.

Based on the above measure, the author built a **universal model of determinants supporting an employee in an organization**, consisting of four, areas T, S, R, and E containing

determinants potentially supporting employees. The model also includes six planes of potential fit between the different determinants from different areas with T, S, R, and E. The model is universal, in the sense that it can be used to analyze the performance of employees in an organization regardless of the industry, and the specifics of its operation. The author also points out that to make an in-depth analysis of the functioning of employees in a particular organization, the components of the various categories should be clarified by detailing the determinants specific to the organization under study, taking into account the industry in which it operates and the specifics of its functioning.

Regarding the role of introducing agile work methods into organizations today, the author focused on the search for determinants that support the functioning of employees in an agile work environment, taking into account the specifics of working in the IT industry. Identifying and structuring these determinants, taking into account their relevance to team members, could be a valuable source of knowledge for those with a real impact on the functioning of agile teams, which in the next step could lead to increased alignment between employees and the organization, translating on the one hand into work comfort and greater satisfaction for employees, on the other hand, into better results for the organization. Awareness of what determinants support employees in their task performance would enable those responsible for the operation of agile teams to create the right working conditions for employees, thus eliminating their desire to look for another job and leave the organization. The above action could eliminate the development barrier that the IT industry faces today, in the form of the problem of retaining qualified professionals in the organization for the long term.

During her literature research, the author did not find a study, constituting an analysis of the functioning of employees in an agile work environment, taking into account the systems approach and the theory of human-organizational fit, which allows considering the four areas of employee functioning in the organization T, S, R, and E, and six planes of potential fit, which she sees as a research gap. For this reason, the author's research and the empirical model developed can make a significant contribution to the field of management science and quality.

Based on a critical analysis of the literature in the field of management, particularly organizational management in a systemic approach, and the field of work psychology, particularly concerning environmental psychology, which corresponds to the theory of human-organizational fit, the dissertation assumes that behind the success of any enterprise is, on the one hand, a person (who has individual rational and emotional resources), and on the other, the organizational (social and technical) solutions that support him. All elements of the system should be compatible with each other. The mutual fit between the employee and the organization, which translates into his effectiveness in the work environment, can be made possible by identifying and structuring the determinants, both organizational and human, that support the functioning of employees in an agile work environment.

Accordingly, the research problem is: **The structure of the determinants supporting the functioning of employees under agile working conditions.**

In light of the research problem formulated in this way, the main objective of this dissertation became to identify the structure of determinants supporting employee functioning under agile work conditions arising from the social and technical resources of the organization, as well as the rational and emotional resources of human beings.

To achieve the main objective, the following specific objectives were adopted:

Exploratory objectives:

- construction of a universal model of determinants supporting the functioning of employees in the organization,
- identification and ordering in terms of importance for members of agile teams of homogeneous determinants, supporting their functioning in agile working conditions,
- identification and ordering in terms of importance for members of agile teams of hybrid determinants, supporting their functioning under conditions of agile work,

Application objective:

- to build an empirical model of agile team members' preferred determinants supporting their functioning under agile working conditions.

Given the scientific problem posed, the author based the empirical research mainly on quantitative methods. The element of qualitative research took place during a pilot study using the uncategorized interview method, the purpose of which was to verify the completeness of the selection of characteristics of agile work and to verify the completeness of the selection of determinants potentially supporting the functioning of employees in agile work conditions, to verify the correctness of the adaptation of language to the specifics of the industry and also to verify the clarity and unambiguity of the questionnaire wording. The research used a methodical hypothetico-deductive model. "By a hypothetico-deductive model is meant such a way of positing scientific explanations, in which based on the rules of logical inference the truth of the explanation is proved. Hypotheses are derived from general theories and then tested based on empirical data using methods of quantitative analysis".

The purpose of the empirical research was to verify the following **hypotheses**:

H1: There is a set of homogeneous determinants supporting the functioning of an employee in an agile work environment characteristic and limited to only one **area**. Accordingly, the following sub-hypotheses were adopted:

- **H1a:** There is a set of technical determinants (T) - relating to the sphere of technique and technology in the organization,
- **H1b:** There is a set of social determinants (S) - relating to the social sphere of the organization,
- **H1c:** There is a set of rational determinants (R) - relating to human rationality,
- **H1d:** There is a set of emotional determinants (E) - relating to human emotionality.

H2: There is a set of hybrid determinants supporting the functioning of an employee in an agile work environment created by the coexistence of two, or more, elements from the following areas: technical (T), social (S), rational (R) and emotional (E).

As these determinants exist on potentially six **planes**, the following sub-hypotheses were adopted:

- **H2a:** There is a set of hybrid determinants coming from the technical and social areas specific to the TS plane - **the ideal organization,**

- **H2b:** There is a set of hybrid determinants coming from the area of human rational and emotional resources specific to the RE plane - **the ideal employee,**

- **H2c:** There is a set of hybrid determinants derived from the technical area of the organization and the human rational resources inherent in the TR plane - **the merit of the job,**

- **H2d:** There is a set of hybrid determinants coming from the social area of the organization and the emotional resources of a human being specific to the SE plane - **employee well-being,**

- **H2e:** There is a set of hybrid determinants derived from the technical area of the organization and human emotional resources specific to the TE plane - **work ecology,**

- **H2f:** There is a set of hybrid determinants derived from the human rational resource area and the organization's social area specific to the RS plane - **work comfort.**

To verify the formulated research hypotheses, the author conducted an empirical study. The selection of the study sample was purposive. In connection with the adopted goal of the research, which was to identify and organize in terms of importance for members of agile teams of homogeneous and hybrid determinants supporting their functioning in agile work conditions, the research sample consisted of employees, performing their professional tasks in agile work conditions, employed in companies, which are part of the ICT cluster Central Poland, whose main activity was related to software development.

The survey was conducted in **three consecutive stages** :

- **Stage I** - a pilot study using the uncategorized interview method - effect: verification of the completeness of the selection of characteristic features of agile work and verification of the completeness of the selection of determinants potentially supporting the functioning of employees in agile work conditions, verification of the correctness of the adaptation of language to the specifics of the industry and verification of the clarity and unambiguity of the wording of the questionnaire.

- **Stage II** - preliminary survey using a pre-test questionnaire to verify the performance of respondents in agile working conditions - effect: verification of the target research group.

- **Stage III** - a proper survey to identify and rank the importance to respondents of homogeneous and hybrid determinants using the main research questionnaire - effect: collecting data and conducting statistical analyses of the results obtained.

The combination of the results obtained from all stages of the study made it possible to realize the application goal adopted in the dissertation, i.e. to develop an empirical model of agile team members' preferred determinants supporting their functioning in agile work environments.

The dissertation consists of **six chapters** preceded by an introduction and summarized by a conclusion.

The **first chapter** is a discussion of the organization from a systems perspective. It is divided into three subchapters. It began with an overview of the definition of organization and

then focused on the organization in systems view as a basis for further consideration and justification for the theoretical assumptions made in the dissertation regarding the perception of the organization as a socio-technical system. A detailed analysis of models of organizations in the systems view was made. This was followed by a detailed description of the technical sphere and the social sphere of the organization, and the distinctive categories of organizational resources and their constituent determinants, potentially supporting the functioning of employees in the organization, were identified.

Chapter two is a discussion of human functioning in an organization. It was divided into three subsections. It began with a general characterization of the functioning of man in the organization, allowing him to be seen as a key element of the social sphere of the organization. Then the essence of the human-organizational fit was described, noting the ambiguity of the concept of fit, its relevance to the functioning of modern organizations, and the effects of fit and its absence on both the organization and the human being were pointed out. The theory of fit between man and organization formed the basis for the second theoretical assumption of viewing man as a rational-emotional individual. Accordingly, the essence of a person's rational and emotional resources is described in turn, for each area indicating the key and characteristic categories of resources that an employee brings to an organization, as well as the constituent determinants that potentially support the functioning of employees in an organization.

The **third chapter** is a discussion of the concept of a universal model of determinants supporting human functioning in an organization. It is divided into three subsections. It began by characterizing the universal and specific nature of the determinants potentially supporting employee functioning in the organization. Then the universal model of determinants supporting an employee in an organization was described. The model was built based on an analysis of the literature from the areas of management, in particular, organizational management from a systems perspective, and the area of labor psychology, in particular, the concept of human-organizational fit. The model takes into account the four areas of T, S, R, and E containing the determinants that potentially support employees in the organization. Also included in the model are six planes of potential fit between the various areas' determinants from T, S, R, and E.

The **fourth chapter** is a discussion of agility as a response to the challenges of the environment of modern organizations. It is divided into three subsections. It began with a characterization of the environment of modern organizations, followed by a description of the importance of agility for the functioning of modern organizations, a description of the ambiguity of the concept of agility and agility as an attribute of the organization, the team, and the individual. A characterization of the functioning of teams under agile working conditions was made, which made it possible to identify and organize the characteristic features of agile work, concerning both the functioning of the team and the characteristic behaviors of members of agile teams.

The **fifth chapter** describes the author's research methodology. It consists of four subchapters, which describe, in turn, the scientific problem, objectives, and hypotheses adopted in the study. The methods and tools used are described and the course of the research is characterized. Subsequently, the conceptual assumptions for the measurement of determinants and the statistical methods used during the study are described and then the study sample is presented in detail.

The **sixth chapter** presents the results of the author's research on the determinants supporting the functioning of employees in an agile work environment from the perspective of members of agile teams. It consists of eight subchapters, which successively describe the analysis of the obtained research results concerning, in turn, homogeneous determinants: rational, emotional, technical, and social. Results were presented regarding the identification and ordering in terms of importance for members of agile teams of homogeneous determinants that support their functioning under agile working conditions. Next, the results of the research on the identification and ordering in terms of importance for members of agile teams of hybrid determinants that support their functioning in agile working conditions are presented, and an analysis of the potential levels of hybrid determinants concerning the universal model is made. Subsequently, the evaluation of the mutual influence of each group of determinants on each other is described, and the ranking of the importance of each group of determinants in the opinion of team members is presented. Next, the empirical model of agile team members' preferred determinants supporting their functioning under agile working conditions, built based on the obtained survey results, is discussed, and its limitations and the conditions needed for its implementation are described. The chapter concludes with a comparison of the perspectives of team members and supervisors in assessing the determinants that support the functioning of employees under agile working conditions and describes the observed similarities and differences in the perceptions of the two groups.

The dissertation closes with a conclusion, which presents conclusions from the analysis of the literature on the subject, as well as from the analysis of the results of the conducted own research. Recommendations for business practice are indicated. The possibilities for further scientific work within the presented subject of the dissertation are also outlined, and attention is drawn to the limitations of the conducted research. The dissertation is accompanied by a bibliography, a list of tables, a list of figures, and appendices.