Artificial Intelligence and Management of Dualities in Software Development Companies

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Abstract

Artificial intelligence (AI) has become omnipresent in the software development area and its management nowadays, including a very important part of the management of dualities. However, this theme still remains poorly studied and debatable, especially for leading personnel of software development companies. Effective management of dualities is very important for the success of any company and artificial intelligence can significantly influence it. For this reason, the first initial goal of the research was to study different aspects of the utilization of AI in the management of dualities in companies from the area of development of software solutions to systemize existing knowledge on the topic. Those aspects include possibilities of use, its benefits and drawbacks, and analysis of existing solutions and case studies. The second less important initial goal was to prepare recommendations for the implementation and utilization of AI in the business area. The study is qualitative and consists of two sequential parts: theoretical and practical. The first one is conducted with a scoping literature review. The second one is based on the first and represents research in the professional area in the form of a structured interview. The results show the benefits as well as the importance and necessity of the implementation of AI support for the management of dualities for the success of software development companies. At the same time, they identify some potential drawbacks and problems with technology acceptance. Additionally, they identify potential inconsistencies between theoretical investigations and the reality of the business area. Based on them the most important recommendations for the process are prepared and written down. The results are useful for the people employed in the area both in leading and non-leading roles. The inconsistencies identified need an additional investigation. This work could be used as a good starting point for continuing research works on the topic.

Keywords: agile methodologies, artificial intelligence, decision-support systems, management of dualities, software development, software engineering.

Umetna inteligenca in management dualnosti v podjetjih za razvoj programske opreme

Izvleček

Umetna inteligenca (UI) je danes postala vseprisotna na področju razvoja informacijskih rešitev in njihovega upravljanja, vključno z zelo pomembnim delom managementa dualnosti. Vendar ta tema še vedno ostaja slabo raziskana in sporna, zlasti za vodilne kadre podjetij za razvoj programske opreme. Učinkovito upravljanje dualnosti je zelo pomembno za uspeh vsakega podjetja in umetna inteligenca lahko nanj pomembno vpliva. Zato je bil prvi začetni cilj raziskave preučiti različne vidike uporabe umetne inteligence v managementu dualnosti v podjetjih s področja razvoja informacijskih rešitev za sistemizacijo obstoječega znanja o temi. Ti vidiki vključujejo možnosti uporabe, njene prednosti in slabosti ter analizo obstoječih rešitev in študije primerov. Drugi manj pomemben začetni cilj je bil pripraviti priporočila za implementacijo in uporabo umetne inteligence na področju. Študija je kvalitativne narave in je sestavljena iz dveh zaporednih delov: teoretičnega in praktičnega. Prvi je izveden s pregledom literature. Drugi temelji na prvem in predstavlja raziskavo na strokovnem področju v obliki strukturiranega intervjuja. Rezultati kažejo na koristi ter pomen in nujnost implementacije podpore UI za upravljanje dualnosti za uspeh podjetij za razvoj programske opreme. Hkrati pa identificirajo nekatere morebitne po-

manjkljivosti in težave pri sprejemanju tehnologije. Poleg tega ugotavljajo morebitna neskladja med teoretičnimi raziskavami in realnostjo poslovnega področja. Na njihovi podlagi so pripravljene in zapisane najpomembnejša priporočila za proces. Rezultati so koristni za ljudi, zaposlene na področju, tako na vodilnih kot strokovnih vlogah. Ugotovljene nedoslednosti pa zahtevajo dodatno preiskavo. Rezultate dela lahko služijo kot dobro izhodišče za nadaljevalne raziskave na temo.

Ključne besede: agilne metodologije, management dualnosti, programsko inženirstvo, razvoj programske opreme, sistemi za podporo odločanju, umetna inteligenca.

1 INTRODUCTION

Artificial intelligence (AI) has been developing rapidly in recent decades and has become the most significant trend in all professional areas in the last few years [1]. The sphere of development of software was not an exception. Artificial intelligence has found a wide range of applications there, from the development process by itself to the management of projects. Almost anywhere it brought a lot of improvements [2], [3], [4], [5].

Management of dualities is an important part of the entire management process dealing with paradoxes or dualities. The latter means a situation of dealing with some pole opinions about some decisions appearing in the organization. Management of dualities by itself is intended to study and provide a guideline about dealing with such situations. Its effectiveness plays a big role in all steps of the development process, since paradoxes and poles may appear in any of them, from design till maintenance. Particularly productive collaboration, delivery, and quality assurance can be ensured only this way. However, it may be hard to implement, especially in the case of big, complex projects [6].

Management of dualities is closely related to decision-making. Supportive systems intended to help with decision-making can be utilized in the management of dualities as well. These systems nowadays are deeply integrated with artificial intelligence and machine learning [7], [8].

Despite the benefits of utilization of artificial intelligence in decision-making and development of software as well as the improvements it brings, this theme still remains a controversial topic, especially for non-technical employees, including those who make important decisions and direct organizations [9]. In terms of the utilization of artificial intelligence in software development companies, previously described thematizes of the management of dualities and of use of AI in order to support it are very important. Management of dualities is only a small part of the entire process of development of software, however as it was described before, this part plays a big role. This part can be pretty much representative for the analysis of the entire management process impact [6] and as a good example of helping companies decide whether to implement the supportive systems or not.

For the reasons described above, the author has decided to conduct comprehensive research on the theme. There were two goals set. The first goal of the research was to study different aspects of the utilization of AI in the management of dualities in software development companies: possibilities of use, its benefits and drawbacks, and analysis of existing case studies. The second goal was to prepare recommendations for the implementation and utilization based on the study of the aspects.

The research was designed as a sequential qualitative one, consisting of two parts: theoretical literature analysis and research of the real professional sphere. During the first one, the sources related to these thematic were identified and analyzed, and by the end, the results were written down. The study included both studies of scientific sources related to AI and the management of dualities and analyses of the professional sources and case studies. In the second part, a set of structured interviews with professionals employed in the field were conducted. Then their conclusions were also written down and compared with the results of the literature review to cross-validate them based on complementary/non-complementary and identify similarities, differences, and possible deficiencies.

According to the sequential design principle, one of the goals of the entire research and the main purpose of the first part was to analyze the topic in order to prepare the ground for the second part. Another less important optional goal was to study the theme by itself and systemize all the found knowledge

about it in order to help employees of software development organizations in different steps of the integration of AI into the process of the management of dualities. Another goal of the entire research and the main goal of the second part was to analyze the situation in the real business area to provide a ground for comparing the results of the interviews with the findings of the first part, evaluate those findings, and identify their possible weak points as well as required additions and corrections.

2 METHODOLOGY

The entire research was designed as a sequential qualitative one. First, the theoretical study of the topic in the form of a literature review was planned to be conducted. Then, real professional area research, based on the study of theory, should have been done.

2.1 Literature Review

As a methodology for research of the theory, the scoping literature review was utilized because of the novelty of the topic and in order to ensure a complete and comprehensive overview of the theme. Its goal is to find, map, analyze, and summarize as many sources on the topic of study as possible to make sure that no existing knowledge is missed and to identify key concepts and gaps. The most important steps here are the following:

- Definition of the research question
- Definition of the query for search
- Search for sources
- Selection/filtering of the relevant sources
- Extraction and organization of data
- Analysis and summarization of data
- Synthesis and presentation of the results [10], [11]

The research questions (RQs) defined by the author were as follows:

- RQ1. »What is the management of dualities?«
- RQ2. »How does artificial intelligence influence the management of dualities in general?«
- RQ3. »What are specifics of the management of dualities in software development companies?«
- RQ4. »How does AI influence the management of dualities specifically in the companies from the sector of development of software?«
- RQ5. »How can AI be implemented and utilized in the management of dualities specifically in software development companies?«.

Considering these questions and the fact that nowadays a large number of software development companies are utilizing agile methodologies [9], the keywords selected for the search query were the following:

- Agile methodologies
- Artificial intelligence
- Decision-making support
- Management of dualities
- Software development
- Software engineering

The keywords were combined and entered in pairs. The sources were searched in the Scopus database as one of the most recognized cross-discipline ones. Additionally, some identified relevant sub-sources of the found literature were analyzed and included as well.

Based on the research questions, the keywords, and relevance requirements the four criteria for the inclusion/exclusion were defined (Table 1).

Table 1: **The Criteria for the Literature Review**

Criteria	Description	Objectives
Actuality	The work was published no more than 5 years before the moment of the search. More recent items are prioritized.	Ensure only valid knowledge is included in the study.
Reliability	The work is published in a peer-reviewed resource, according to the information from the official web page of the resource.	Ensure the results of the analyzed work are reliable and officially confirmed.
Formal relevance	Keywords of the work include a combination of the query ones. Found items with a bigger number of matching keywords are prioritized. At least one match must be present.	Ensure the work is formally relevant. Fasten and automatize filtering of non-relevant items without the necessity to study them in depth.
Actual relevance	The work studies one of the topics specified by one of the research questions or its relationship with agile methodologies.	Ensure the work is actually relevant to the intended analysis.

For data analysis and synthesis, qualitative and quantitative approaches are available. The author selected the first one because of the width of the topic and relatively general search criteria.

After conducting the search, the author has identified and filtered according to the prioritization principles mentioned, twenty-seven of the most relevant and suitable for the intended study research items. As planned, the search was made directly in the Scopus database and in sub-sources of the literature found. The number is relatively small due to the specificness and novelty of the theme as well as the fact that a lot of items repeat each other or reference the same research works. These were the reasons for the fifth additional uniqueness criteria application and for the mentioned filtering and inclusion of sub-sources.

Also, conducting a search for the works related to the available specific tools for decision-making support enhanced with AI, the exception in the selected methodology was made. The reason was that the author was unable to find sufficient scientific sources matching the criteria for this exact topic. Here the search was made on the web with evaluation based on the trustworthiness, wide public recognition, and reliability of the identified sources. In this part, three additional web sources were identified and included in the study.

2.2 Structured Interview

For research of the real business world, the structured interview methodology was selected. It is characterized by consistency, standardization, reliability, and overall efficiency due to minimized bias and much easier data analysis compared to other kinds of interviews. At the same time, it requires good planning and preparation. Using this approach the researcher prepares a set of predefined questions which are standardized and asked always in the same order. This set is based on research questions and objectives. The recommended number of interviews is approximately 15 [12].

The research questions for this part were the same as the third (RQ3), the fourth (RQ4), and the fifth (RQ5) ones for the study of theory. The questions for the interviews were planned to be defined after the completion of the scoping literature review in order to ensure their relevance, accuracy, and usefulness.

The interviews were conducted with the professionals employed in management roles in different companies in the sector of development of software from different Eastern European countries. The interviewees were selected and invited randomly. The companies were distributed equally by size, 5 small, 5 medium-sized, and 5 large ones. These companies utilize agile methodologies for the management of projects. All the responses from the respondents were collected anonymously which was explained before the start of each interview alongside its purpose and the goals of the research.

Analysis of the responses was conducted with the standard for structured interview coding process: initial then focused and by the end theoretical coding. For the initial step descriptive approach was selected since the responses sometimes differed a lot by length and depth. For the focused coding, two main criteria were selected: relevance and frequency. The purposes were to ensure firstly actuality and secondly objectivity through using a quantitative criterion. For the theoretical step, the relevance criterion was selected as the main, since other typical criteria are less suitable for comparison and evaluation of the results of the investigation of theory, which was the predominant goal of the second part of the entire research [12].

3 RESULTS

3.1 Literature Review

After conducting the literature review utilizing the scoping literature review methodology described in the Methodology section, the following results were obtained.

3.1.1 Decision-Support

Decision support and related branches of science play an important role in any sphere of modern economics. It can influence management on all levels and stages from procurement and supply [13], [14] to after-sales services [8] or what is much closer to the theme of this paper in security management of information systems [15]. Decision-making support studies different aspects of the process, for instance, decision-making styles (DMS) [16], [17] dealing with managers' ways of thinking during the process or building of decision models and trees intended to help with the process [15].

3.1.2 Artificial Intelligence

Artificial intelligence started to play an important role in nearly all spheres of modern economics in recent years as well. The range of areas varies from the most practically oriented ones like production [18] and logistics [19] to insurance [20], law [21], and sport [22]. Of course, management and decision-making support are among them too. Artificial intelligence and data mining have boosted the second sphere with the possibility to collect and analyze enormous amounts of data and thus have become a necessary part of any successful modern business [7].

3.1.3 Management of Dualities

Dualities or paradoxes in management mean situations when there are two opposite opinions or points of view about something. Management of dualities is a branch of management dealing with all kinds and stages of such situations. It plays an important role in the success of any company [6]. Management of dualities as a branch of management science provides guidelines on how to identify, understand, and exploit arising paradoxes in an organization [23].

All dualities can be split into two main categories: normative and strategic. Both are related to the corresponding kinds of management. The normative one deals with an organization's mission, values, and norms. Examples of paradoxes arising here are »profitability vs. responsibility« and »exploitation vs. exploration.« The strategic one deals with the organization of the company's resources in order to achieve its objectives and goals. Examples of dualities there are »cost vs. differentiation« and »insourcing vs. outsourcing« [6].

Management of paradoxes is closely related to decision-making support. The latter helps to improve dealing with dualities [7], [8]. Consequently, the integration of artificial intelligence also started there and influenced this sphere too.

3.1.4 Management in Software Development Companies

Management of modern software development companies has a number of specifics. The most important among them is the utilization of agile principles and methodologies. Those principles were established in the year 2001, and since then, the approaches for the management of companies and projects implementing them have become the most popular in the sphere of the development of software. In general, they are based on adaptive iterative development with continuous improvements [24]. One of the main specifics of agile management is the high level of decentralization. Development teams are allowed to make and implement some decisions at a low level without confirmation from the higher management [25], [26].

Dualities are present in such methodologies as well. Primarily they are of a strategic nature. The most popular among them is »trust vs. control.« Another widespread one is »insourcing vs. outsourcing« [27], [28].

3.1.5 Artificial Intelligence and Decision Support in Management of Dualities

As well as anywhere nowadays, artificial intelligence has found its utilization in the management of software development companies too. This brings both opportunities and challenges. The first includes routine task automation as well as improved planning, risk management, and decision-making. Examples of the second are staff training necessity, overreliance on AI support, and data security issues [8], [29].

Artificial intelligence nowadays is widely utilized in decision support. There are specific kinds of tools called artificial intelligence decision-support systems (AI-DSS). They are utilized in different areas from public management to healthcare, and of course, the business management sphere is among them too [30].

Some researchers have studied the application of AI-DSS particularly in relation to management of dualities and agile management. Unfortunately, there was no work found directly related to the most popular paradoxes present in agile management mentioned before. The closest to the theme of this paper is research from Manzur et al. [31]. These authors have identified that there are realistic possibilities for the application of artificial intelligence into agile management and management of dualities with opportunities and challenges similar to those described before. Those possibilities are design thinking and sprint preparation integration as well as violative conditions management. The latter includes dealing with arising dualities.

Decision-support systems have found their utilization in risk management of different technical spheres like power engineering [32], infrastructure [33], cybersecurity [34], [35], and, as mentioned before, in management [8], [36] including its kind of

development of software. The authors of the last two cited papers identify some improvements in relation to both IT and the company's general efficiency. For instance, in terms of speed of processing of data, quality of decisions, and reduction of primary risks. At the same time, some drawbacks and problems are pointed out too. Examples are issues with the quality and protection of data and the necessity of regular checks of the outputs. Another work by Khamitov [37] has identified potential problems in the utilization of agile management caused by non-rational human decision-making not supported by some technical systems.

It is important to mention that acceptance and utilization of AI-supported tools, including decision--support systems, is still problematic. Business and management-related employees still have a tendency to avoid the usage of such tools and show much more concern rather than will, even in software development companies [9]. This moment is especially important because management of dualities and decision-making primarily fail in their sphere of responsibilities.

3.1.6 Case Studies

An important aspect of analysis of the topic of the research is to study not only theory by the practical examples as well. They can provide enhanced and broader overview as well as help to evaluate the theoretical investigations. At the moment, there exist a number of specific solutions from different providers. Most of them are intended for some specific industry. Some well-known providers of such artificial intelligence-supported systems are SAP [38], Wolfram [39], and SalesForce [40].

In the real business world, artificial intelligence decision support systems are utilized in different ways. Nowadays they are able to collect data from different sources, from open kinds like social networks [41] to organization's internal ones, like human resource management systems [42].

A case study of one Italian company specializing in staff training has identified that artificial intelligence decision support systems by themselves are not comprehensive stand-alone solutions. At the same time, they can be effectively utilized to enhance certain tasks and activities conducted by employees [42].

Due to the small number of sufficient case studies found, the work conducted by the research group from the Slovenian universities was included in the analysis. The paper based on its results has already been submitted for publication in the Scopus-indexed journal but is still passing the review process. This research on the business world, much more directly related to the theme of this paper, was conducted specifically on software development companies in Slovenia. It has been identified that employees of these organizations do not utilize some special decision-support tools, but rather chatbots intended for information search like ChatGPT as a substitute for such kind of systems while making certain decisions [9].

3.2 Structured Interview

In this part preparation, conduction, and the results of the research of the real professional area conducted with the structured interviews are presented. The results of the scoping literature review are already described in the second section of the paper. In accordance with the sequential design of the entire research, the second part was prepared and started only after the completion of the first one.

According to the selected methodology and based on the results of the literature research the author has prepared the questions for the interviews. These questions are presented in Table 2 below, together with their objectives and sources they are based on.

Figure 1 shows the distribution of the interviewees by the levels of management. Distribution was not even. The top level of management was prevailing. However, other levels were represented with some significant part of the audience as well. Additionally, such distribution is adequate because according to the findings of the literature analysis, today, top--level management deals with paradoxes much more often than others.

Answers to the first interview question were different. Five of the most popular dualities mentioned included »stability vs change«, »scale vs scope«, »standardization vs mutual adjustments«, »centralization vs decentralization« and »functions vs. processes«

Responses to the second interview question were more unified. Almost all of the interviewees utilized some kind of SWOT analysis while resolving the dualities faced manually. Also, the use of some tools for data analytics was mentioned.

The breakdown of responses to the third interview question is presented in Figure 2.

The reasons mentioned in answering the fourth

Table 2: **The Questions for the Structured Interview**

Objectives	Question	Sources
Identify what kind of dualities the interviewee faces at work. Answer RQ3.	What kinds of dualism do you face in your work?	[6], [24], [25], [26], [28], [31]
Identify how the interviewee deals with the dualism faced. Answer RQ3 and RQ 4.	How do you deal with the dualism you face in your work?	[6], [27], [28], [31]
Identify if the interviewee utilizes AI support in the management of dualities at all. Answer RQ4 and RQ5.	Do you utilize any kind of AI support in the management of dualities?	[9], [31], [42]
Identify the reasons why the interviewee utilizes or does not utilize AI support in the management of dualities. Analyze the most popular among the reasons. Answer RQ4 and RQ5.	Why do you utilize/avoid utilizing AI support in the management of dualities?	[7], [9], [30], [31], [37] [42]
Identify which of the tools are the most well-known/popular. Analyze if the interviewee is conscious of the possibilities of AI utilization and if they are, to which degree. Answer RQ5.	Which AI tools supporting the management of dualities do you know/ utilize?	[9], [30], [31], [42]

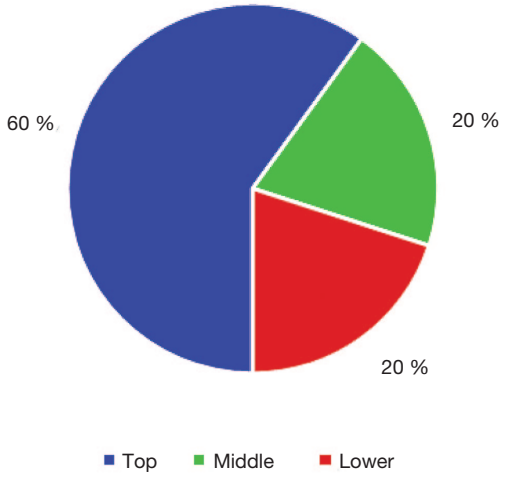

Figure 1: **Distribution of the Interviewees by the Levels of Management**

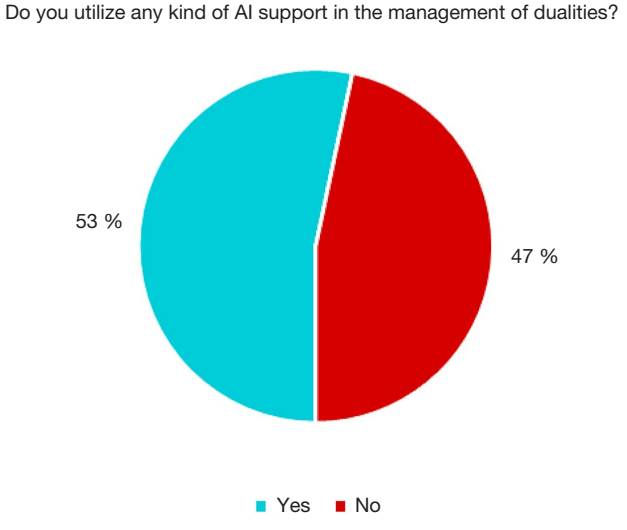

Figure 2: **Distribution of Responses to the Third Interview Question**

interview question were different both for the utilizers and for the non-utilizers. Lack of time, knowledge, good case studies, or even awareness of supportive systems existence as well as constraints of the solutions they are developing are stopping those who do not use AI tools. The utilizers have mentioned third-party opinion provision, usefulness, efficiency improvements, and its ubiquity as the main motivators for usage. At the same time, even those who utilize AI tools have pointed out some drawbacks of their utilization like data security issues, errors and imperfections in outputs as well as potential risks of overlaying onto support and loose of important professional skills. Also, some utilizers have mentioned the fact that the use of the tools is their personal initiative, and the companies they are working on do not support or even try to limit the utilization.

The answers to the last question were pretty much unified. The most of non-utilizers were unable to name any kind of specific tools they knew. Among the utilizers, almost all have mentioned the use of some kind of tools for information search or chatbots like ChatGPT or Microsoft Copilot (Bing AI). At the same time, only a small number are utilizing some specific systems, for example, Oracle Analytic or some custom-developed ones.

4 DISCUSSION

The research of literature, of course, has some constraints. One of them is the limited number of sources analyzed. Another is the fact that the search was conducted only in one database, nevertheless it is very large and well-recognized. Also, there was one minor exception in the selected methodology during the study of the available tools. However, this part is still structurally and pretty much comprehensively done. By the end, it can be indicated as complete and its results as useful. It achieved both its goals set at the start providing the basis for the interviews as well as a pretty much comprehensive overview of the topic of the research.

Similarly, research in the professional sphere has some limitations. First of all, in terms of geographical region. Second, the width of the professional sphere of software development is huge, and there could be differences in some specific subareas, while the research included all types of organizations and solutions without differentiation. At the same time, this part was designed and almost totally conducted according to the most important and recognized recommendations and equally represents companies of different sizes. For these reasons, it can be stated as comprehensive and useful as well. As well as the first part, it has achieved its goals.

As a result of the literature review, addressing the first research question (RQ1) it can be stated that the management of dualities is an important part of the management of any modern organization dealing with so-called paradoxes arising in the management of the organization. It can be enhanced with closely related decision-support concepts and systems implementing them. The latter can help in dealing with different types of dualities popular in software development, like outsourcing and risk-related ones.

Answering the second research question (RQ2), artificial intelligence has found a wide utilization in decision-supportive systems for a number of reasons. According to almost all researchers, it makes them much more efficient, useful, and faster. At the same time, some authors point out drawbacks related to staff's technology acceptance and training as well as to data utilization and security.

Addressing the third research question (RQ3), the management of software development companies, including its dualities-related part, has plenty of specifics, like agile principles utilization, some particular kinds of dualisms popular, and low-level decision-making. However, addressing the fourth research question (RQ4), it can be identified that artificial intelligence decision-support systems can be utilized there too. Most of the researchers point out the presence of both opportunities and threats described in the previous paragraph. But overall, those systems can bring a number of benefits improving management of dualities in terms of speed and quality. At the same time, addressing the fifth research question (RQ5) they must be utilized wisely considering previously mentioned data-related issues as well as potential problems with the quality of output and resistance from the business and management employees inside the organization. Here investments and provision of enhanced security of data, regular checks of results of work of the supportive system as well as argued, persuasive presentation of necessity and potential benefits of the implementation are recommended.

Also, it is important to take into consideration previously mentioned specifics of management of modern software development projects, especially already mentioned low-level decision-making typical for agile methodologies. Taking them into account there can be recommended implementation of decision-making supportive systems in the operational management of development teams similar to those at highest levels of the organization.

The results of the research in the business area are primarily consistent with the literature. The benefits and disadvantages of utilization of AI support in the management of dualities are similar in both parts. The same reasons stop organizations and their employees from implementing and active use of artificial intelligence-enhanced systems are mentioned both in the literature and by the interviewees. At the same time, in terms of the RQ5, these professionals have reported some additional causes, like constraints on the solutions they are working on and a lack of awareness of the existence of the supportive system. Also, there are differences in terms of the dualities faced in agile management (RQ3) and of the utilization of the specific tools (RQ5). Literature and web sources primarily mention some systems specifically intended for decision support and data analytics. However, most of the professionals interviewed utilize some substitutions like chatbots. Only a very small number of them use previously mentioned specific systems.

Of course, the differences may be caused by regional or some other limitations. However, there could be another reason, like inconsistency between the theoretical studies and the reality of the business sphere. Here the author can propose additional practical investigations both in general and considering potential regional specifics.

5 CONCLUSION

Addressing the research questions of both parts of the entire work and as a general conclusion, the author of this paper can identify that management of dualities is a part of the entire management process dealing with the arising dualities/paradoxes of normative and strategical nature. It can be stated that this part and its efficiency are very important for the success of any company nowadays, including those in the software development sector. Management of dualities can enhance such aspects as development by itself or maintenance and improvement of a company's reputation. For this reason, both artificial intelligence-enhanced and classical decision-support systems significantly improving this process should be implemented and actively utilized in the sphere. Of course, the last two activities must be conducted wisely, considering all the risks and drawbacks. Also, specifics of the area and its management play a significant role and must be taken into account.

Decisions on the implementation and its details are always up to the organization, and structured, proven reasoning and argumentation whether to decide upon it or not is very important. However still, if a company from the software development sector would like to be successful today those enhancements need to be made at some point in time. This way the organization can ensure its competitiveness and efficiency in the modern business market.

Based on the research of the professional area of development of software conducted by the author there were identified some differences between the previous investigations analyzed and the results of the practical research. For instance, in terms of reasons stopping the implementation and utilization as well as regarding the tools used. As was mentioned before, there could be recommended additional investigation into the theme. This paper and its results can be used as a good starting point for continuing research works on the topic.

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