THE COVID-19 PANDEMIC AS A MODERATOR OF RELATIONSHIP BETWEEN APPLIED PROJECT MANAGEMENT METHODOLOGIES AND EMPLOYER BRAND ATTRACTIVENESS

Rafał SAWICKI[1], Anna ZABŁOCKA-KLUCZKA[2*]

[1] Graduate of Wroclaw University of Science and Technology, Faculty of Management;
sawickirafal@outlook.com, ORCID: 0000-0003-4234-0014
[2] Wrocław University of Science and Technology, Faculty of Management, Department of Management Systems
and Organizational Development; anna.zablocka-kluczka@pwr.edu.pl, ORCID: 0000-0002-4743-2375
* Correspondence author

Purpose: The purpose of the paper was to investigate the relationship between the applied project management methodologies and the perception of the employer's brand attractiveness. In addition, an attempt was made to identify the variability of this relationship due to the COVID-19 pandemic.

Design/methodology/approach: Empirical research was conducted to verify the existence of the predicted relationship and to reach the aim of the paper. The set of hypotheses was built based on the theoretical research and then verified in two differently constructed research (the study was conducted using the CAWI method) on two separate samples of respondents: 92 students (potential employees) and 81 employees working on projects in organizations operating in Poland. The calculations were made using the PS Imago Pro ver. 7.0 and Process macro for SPSS ver. 4.1 by Andrew F. Hayes.

Findings: It has been shown that the crisis caused by the COVID-19 pandemic did not directly affect the perception of the employer's brand attractiveness, but it is a moderator of the relationship between the applied project management methodologies and the attractiveness of the employer's brand. However, although the authors found the basic relationship true for both groups of respondents, the moderating effect is valid only for a group of employees.

Research limitations/implications: The analysis is based on a limited number of cases in particular groups. In order to generalize the results in future research larger samples can be collected. There is also space to search for factors explaining why and under what conditions the type of project management methodology affects the attractiveness of the employer's brand.

Practical implications: The obtained results contribute to the practice of management, showing that among the various groups of factors determining the attractiveness of the employer's brand, the attributes of the work processes (which include also the selection of project management methodology) are important as well. Organizations that apply agile project management methodologies can be more attractive to employees, especially in times of crisis and attract the more qualified specialists in the industry. Thus emphasizing the use of agile project management methodologies can be part of an employer's branding strategy shaping.

Originality/value: The research makes an important contribution to the body of human resources and project management literature by demonstrating COVID-19 as a significant moderator for the relationship between the applied project management methodologies and the attractiveness of the employer's brand.

Keywords: employer brand attractiveness, project management methodology, COVID-19, management.

Category of the paper: Research paper.

1. Introduction

In times of volatility and uncertainty in the market, recruiting new and retaining existing employees, especially specialists, is a challenge for all companies. The outbreak of the COVID-19 pandemic, disrupting the world of work, has only created additional pressure on this issue. Now more than ever, a strong employer brand can help an organization differentiate itself from competitors and attract or maintain highly qualified employees. "Building and fostering an attractive employer brand helps organizations inspire and attract the right employees and ensures that employees strongly identify with their employer" (Nelke, 2021, p. 388). Moreover, organizations with strong and attractive employer brand can potentially reduce the cost of employee acquisition, improve employee relations, increase employee retention and even offer lower salaries for comparable staff to firms with weaker employer brands (Alnıaçık, Alnıaçık, 2012; Dalsfeld, 2021; Kurniawan et al., 2020; Nandakumar, Bhat, 2015; Wojtaszczyk, 2012), but also leads to achieving higher financial results, increasing customer satisfaction and reducing costs (Fulmer et al., 2003).

Literature research provides information on many factors determining employer brand attractiveness (Ambler, Barrow 1996; Dabirian et al., 2017, Dabirian et al., 2019; Kurniawan et al., 2020), both instrumental (the tangible, product-related, physical or in broad 'job/organization' related attributes) and symbolic (that describe the organization in terms of subjective, abstract and intangible traits) (Lievens, Highhouse, 2003). Among those concerning the attributes of the work process the project management methodologies, that determine the way work is organized, can be pointed out. In the context of the COVID-19 pandemic, which dramatically changed the way the work was performed, arises a question if an applied project management methodology has the power to influence employerbrand attractiveness. This question has not been answered and is a research gap that needs to be addressed.

In order to fill the observed gap the purpose of the paper was to investigate the relationship between the applied project management methodologies and the perception of the employer brand attractiveness. In addition, an attempt was made to identify the variability of this relationship due to the COVID-19 pandemic. Such research intent was structured by a literature review on the subjects of employer brand attractiveness and project management

methodologies, which subsequently laid the foundation for the development of a conceptual model. Further on, empirical research with data collected from two separate samples of respondents: 92 students (potential employees) and 81 employees working on projects in organizations operating in Poland was performed. Discussion of the obtained results leads to the conclusion that performed research contributes to the body of academic knowledge on human resources and project management literature by demonstrating COVID-19 as a significant moderator for the relationship between the applied project management methodologies and the attractiveness of the employer's brand.

2. Literature overview and hypotheses development

2.1. Employer's brand attractiveness and its determinants

Employer brand can be defined as "the package of functional, economic and psychological benefits provided by employment, and identified with the employing company" (Ambler, Barrow, 1996, p. 187). There are several terms that are used to address this concept: recruitment image, employer brand image or employer attractiveness (Berthon et al., 2005; Gatewood et al., 1993; Rampl, Kenning, 2014; Ronda et al., 2018). However, in this study, the concepts of employer brand and employer brand attractiveness will be clearly demarcated. According to Ronda et al. (2018) employer brand refers to employer attributes that are employer-extrinsic traits set by companies that constitute an organization's offering to employees (i.e. salary, working hours, available training or promotion possibility). Those attributes are shaped by organizations in a process of employer branding – "a targeted, long-term strategy to manage the awareness and perception of employees, potential employees and related stakeholders with regards to a particular firm" (Sullivan, 2004 in: Alnıaçık, Alnıaçık, 2012, p. 1337) aimed at building an image in the minds of the potential or present employees. Employer branding determines thus employer brand attractiveness, that can be understood as an attitude or general positive feeling towards the specific organization perceived as a "good place to work" and defined as the envisioned benefits that a potential employee sees in working for a specific organization (Berthon et al., 2005). Therefore, in assessing the attractiveness of the employer's brand, the subjective point of view of the employee (or potential employee) is adopted.

In contemporary research employer brand attractiveness is perceived as a multidimensional construct. There is a lot of research focusing on finding the factors that determine the attractiveness of the employer's brand, however, there is no single consistent classification of these factors. According to Ambler and Barrow (1996), three dimensions should be taken into consideration when assessing employer brand attractiveness: psychological benefits, functional benefits and economic benefits. Kurniawan et al. (2020) suggest that employees will accept a new job because of 5 top factors: work culture and team dynamics, employee benefit,

new challenges and industry exposure, maximization of skills and abilities, and monetary benefits. Berthon et al. (2005) developed a scale for measuring employer attractiveness in terms of employer branding concept, containing five factors which are social value, interest value, development value, economic value and application value. According to Dabirian et al. (2017, 2019) this proposition can be extended by the role of management, work/life balance, economic issues tied to compensation, opportunities for professional development, the image of the employer on the market or interesting and challenging work tasks. In particular, this last factor concerns the values of the attributes of the work process. In the context of the COVID-19 pandemic, which dramatically changed the labor market and the way the work was performed, appears a question if one of those factors creating an interesting and challenging work environment could be project management methodology used, and in a broader context if an applied project management methodology has the power to influence employer brand attractiveness.

2.2. Overview of project management methodologies

Undoubtedly, efficient project realization requires efficient project management. Project management means "planning, organization, monitoring and control of all aspects of a project, with the motivation of all included parties to achieve project goals in a safe manner, within the agreed schedule, budget and performance criteria" (Radujković, Sjekavica, 2017, p. 608). There are a lot of different methods, tools and techniques that can be used to deliver project results, however, according to different specificity, duration, type of expected result, level of innovation, scope or size of the project there are different ways of project management, and it is simply impossible to indicate which one is the best. To ensure the repeatability of the success in projects realization, attempts were made to unify and standardize the methods of project management, which led to the development of project management methodologies (PMMs).

PMM is usually defined as a set of methods, techniques, procedures, rules, templates and best practices used on a project (Pace, 2019; Project Management Institute, 2008; Radujković, Sjekavica, Klepo, 2021; Špundak, 2014; Trocki, 2012; Wyrozębski, Trocki, 2011) or wider as a set of guidelines and principles that can be tailored and applied to specific project situation (Charvat, 2003; Karaman, Kurt, 2015). Such understood PMM is still a philosophy rather than a detailed recipe for project implementation. The use of PMM is always aimed at increasing the probability of successful project delivery (Joslin, Muller, 2015; Kerzner, 2001; Pace 2019; Špundak, 2014). It must be also underlined that there is no one unique, singular, universally accepted PMM that would be adequate and applicable across all projects in all sectors (Charvat, 2003; Cockburn, 2004; Pace 2019).

There are different classifications of PMMs. Taking into account the scope and specificity of the application of a particular methodology, the following PMMs are distinguished: universal, industry-specific, corporate-specific and author-specific (Wyrozębski, Trocki, 2011). Universal PMMs are methodologies intended for use in various fields and situations of project management, usually developed by institutions dealing with the development and dissemination of model methods of project management (i.e. PRINCE 2, PMBoK, PCM, P2M, APM etc.). Industry-specific PMMs are developed by professional associations of specific industries and adapted to the industry specificity of projects (i.e. HERMES: Management and Execution of Projects in Information and Communication Technologies, Project management BundOutline, MSF: Microsoft Solution Framework, EVO: Evolutionary Project Management, XP: Extreme Programming etc.). Corporate-specific PMMs are developed by organizations in which projects are the basis of activity. The area of their application is usually limited to the organization for which they were created. They are rarely original solutions, being rather adaptations of universal or industry-specific methodologies (i.e. NASA methodology for managing space projects and programs, CPMM Cornell University Project Management Methodology, Kansas PMM etc.). Author-specific PMMs are a synthesis of the knowledge and individual experiences of their authors and do not always present sufficient quality (Wyrozębski, Trocki, 2011).

Taking into account the manner of proceeding in the project management process we can distinguish sequentially driven (waterfall, traditional) and iterative (agile) PMM. The core of the traditional approach involves the mechanistic division of work and strict planning of the successive stages of the project. As the work of one phase continues downstream into the next stage it is often referred to as a waterfall. This highly structured approach gives the assumption of manageability and predictability, and helps with the delivery of project success (Laufer et al., 2015, Saynisch, 2010). Agile PMM is the answer to the perceived weaknesses of traditional PMM in a highly changing environment. The basis of agile PMM is a series of recurring iterations that are continued until the delivery of a final product meets customer requirements (Leybourne, 2009; Settina, Hörz, 2015; Pace, 2019). An interesting, two-dimensional classification of PMM was proposed by R. Wysocki (Wysocki, 2014). In his opinion, the PMMs could be classified (and also selected for the project) depending on the features of the project. The key characteristics of the project here are: the clarity and precision of the goal formulation and how obviousness and acquaintance of project solutions. To these two features R. Wysocki assigns only two values: understandable (clear, well-known) and incomprehensible. According to this, each project can be classified into one of the four quadrants, where different PMM can be used:

- traditional – when the purpose of the project and its solution are clear and obvious,
- agile – when the goal is clear but the solution is not obvious,
- emertxe – when the solution is known, but the purpose is unclear,
- extremal – when both the goal and the solution are incomprehensible or unknown (Wysocki, 2014).

2.3. The relationship between the project management methodologies used by the employer and the attractiveness of the employer brand

Particular PMM determines the way work is organized, in particular giving team members a greater or lesser degree of decision-making, influencing the degree of complexity and formalization of tasks performed by employees or influencing predictability of organizational behavior. According to Humprey et al. (2007) organizational practices, structures and work characteristics have a large impact on the feelings and cognitions of the organization's employees. This may determine the attractiveness of the organization as a workplace, and in a broader context the attractiveness of the employer brand.

A cascade model of work in traditional PMM, which assumes the execution of work stages one after another in a strictly defined sequence, involves careful planning and a lack of flexibility. On the other hand, tasks performed in traditionally run projects will be characterized by a greater degree of formalization and, at the same time, will be more understandable and less complex. Such invariability and predictability of curtains may be attractive to some groups of workers, especially those who tend to choose less complicated and more precise tasks than more complex ones (Kouchaki, 2020). This observation may therefore be translated into the perception of the attractiveness of the employer brand through the prism of the project management methodologies used by organizations. From that point of view, the assumptions of traditional methodologies should constitute a higher level of attractiveness than the others. On the other hand, agile PMM whose basic assumption is to break the project into smaller parts, (so-called iterations or sprints) allows each project to be broken down into short stages, which gives great flexibility. Employees often do not work with a predefined plan and have the opportunity to introduce various types of changes and modifications at every stage of the work. At the same time, the tasks are less formally defined, which may translate into the degree of their complexity, but also into the possibility of a large share of employees in the management processes. Self-organization and iterative work nature, combined with a strong emphasis on teamwork and regular task feedback, can be attractive to employees. The observation of Kraimer et al. (1999) saying that "if individuals can regularly assess the immediate results of their work, they are more likely to perceive having an impact in an organizational unit" may confirm this assumption.

The applied project management methodology has an impact on how clearly the goal of the project is formulated. B. Dik claims that employees who know that their work is aimed at a specific goal more often experience a sense of the importance of their work (Dik et al., 2013). Moreover, this aspect will also be related to the independence of decision-making and the influence of the team on the formulation of project goals. In this context, extreme and emertxe methodologies may seem to be the least attractive, because as a rule, in the case of tasks implemented in projects carried out in these methodologies, the goals seldomwill be easily understandable and the purpose of their implementation will not be fully known.

An indirect relationship between an agile project management methodology and attracting people to the organization was shown by J. Koch and C. Schermuly (Koch, Schermuly, 2020), justifying it with the modern empowerment theory (Spreitzer, 1995). Particular PMM gives team members a greater or lesser degree of decision-making. Involving employees in the decision-making process means that they automatically take more responsibility for the activities undertaken within the project and increase the sense of belonging to the team (Schermuly et al., 2013). However, the research of Zaleski & Michalski (2020) showed that there exist negative correlation between agile PMM and team (employees) engagement, which seems to contradict the benefits of empowerment theory. In this way, the choice of project management methodology may indirectly translate into how managers manage and motivate employees. Moreover, correctly implemented agile project management methodologies ensure that the team independently decides about the goals of the project and resource allocation, and that each team member has certain freedom as to how to perform the tasks entrusted to him (Ruhe, Wohlin, 2014). Therefore, agile project management methodologies should have a positive impact on the perception of the employer brand attractiveness. At the same time, it should be noted that with the same assumption, traditional methodologies, in which the aspect of granting decision-making to the entire team is smaller, should adversely affect the perception of the employer brand. The effect of extreme and emertxe methodologies should be analogous to agile methodologies because they provide employees with a high degree of decision-making, even higher than in the case of agile methodologies (Sawicki, 2022).

In addition, when considering the preferences and impressions that accompany the perception of brand attractiveness among employees, one should also take into account the effect of pure exposure to agile project management methodologies, ignored in this context in the literature. In recent years, agile project management methodologies have strengthened their position and have de facto become a standard project management methodology in many industries, especially in the IT industry. Therefore, employees, and in particular applicants who do not yet have work experience, may not be able to consciously recognize the presence of such a stimulus and automatically evaluate as more attractive the brands of those employers who use agile methodologies (Sawicki, 2022).

To summarize, the strength and direction of the relationship between the applied PMM and the attractiveness of the employer brand is unclear. However, there are good indications of such a relationship. Therefore, the following research hypothesis is proposed:

H1: There is a relationship between the applied project management methodologies and the attractiveness of the employer brand.

The attractiveness of the employer's brand will be perceived differently by external recipients (job applicants) and by internal recipients (employees) associated with a given organization through an employment relationship (Kalinska-Kula, Staniec, 2021). They will have different experiences with a given brand, as well as different experiences with the PMMs used, so the assessment of its attractiveness among these two groups will probably be carried

out by two different sets of factor categories. Therefore, the above hypothesis has been made more specific:

H1a: There is a relationship between the applied project management methodologies and the attractiveness of the employer brand perceived by job applicants,

H1b: There is a relationship between the applied project management methodologies and the attractiveness of the employer brand perceived by employees.

2.4. Project management methodologies and the attractiveness of the employer brand in the context of a pandemic

Employer brand attractiveness reflects the generalized attitude towards an organization as a potential employer. In 2020, at the beginning of the COVID-19 pandemic, the MJCC Employer Branding Consultants agency predicted that the pandemic crisis would undoubtedly affect the attractiveness of Polish employers - "as many as 74% of respondents admitted that they were following the activities of employers (other than their own), and nearly 30% of respondents, they even convinced them to apply for a given company "(Juchimiuk, 2021). It turns out that among the factors shaping the attractiveness of the employer brand, economic and social values played the greatest role in this case. Potential and current employees, apart from the stability of employment and the level of remuneration, also paid attention to the possibility of remote work and the level of security provided by the employer. Moreover, 67% of respondents admitted that the information provided by their employer had a calming effect on them.

In view of such facts, it can be seen that there has been a certain shift in job security from the group of hygiene factors to the group of motivational factors. However, one should consider whether this is only a temporary phenomenon, or perhaps one that will have long-term effects. It is worth noting that in the context of employer branding, long-term actions are much more important than short-term ones. In view of this, it would perhaps be unjustified to communicate based on creating an image of a safe (in the context of a pandemic) workplace. It is also worth noting that such actions as withholding recruitment, not participating in trade shows, industry conferences or recruitment events can make a negative impact on the perception of employer brand attractiveness (Mazur, 2020). An employer whose number of touchpoints with employees has shrunk may seem less interesting.

The COVID-19 pandemic crisis changed the way people thought about employer brand attractiveness. Employees expected organizations not only to communicate their values but also to actually demonstrate them. Ways of motivating employees that worked well just a few years ago now play no significant role in attracting and retaining a highly skilled workforce (Adams, 2022). SmartDreams and Firstbird - global organizations active in the human resource management industry - indicate that enhancing employer brand appeal is one of the key aspects for companies in the post-pandemic era (Jelena, 2022; SmartDreamers Team, 2022).

The crisis related to the COVID-19 pandemic caused employees to think more deeply about their careers, working conditions and long-term goals (Beilfuss, 2021; Hsu, 2021). Such a situation may also have an impact on the perception of the attractiveness of the employer's brand. Professional goals and conditions in the workplace are components of the values that have a direct impact on the perception of the employer brand. Moreover, the pandemic has created confusion among previously binding economic and social norms, which has changed people's expectations of the brands they work for and buy from. Today, brand audiences judge organizations more holistically than before. Therefore, to build trust and compete for the best candidates, organizations must conduct consistent communication with all recipients and stakeholders (Palmer, 2022). Empathetic and responsible behavior of employers, as well as consistent communication in a crisis such as caused by the COVID-19 pandemic, will create employees' awareness and attention, and make employer brand more attractive.

To summarize, the following hypotheses can be formulated (similarly to the previous hypothesis, it will be verified in 2 groups of respondents: job applicants and employees):
H2: The crisis caused by the COVID-19 pandemic affects how potential employees – job applicants (a) and current employees (b) perceive the attractiveness of the employer brand.

COVID-19 shook the labor market and changed the way work was performed in many industries. Expectations related to hybrid and remote work have changed. More and more employers around the world have started to use flexible work schedules for their teams, and this led to the emergence of new trends in the labor market - increasing the possibility of remote work. According to a study conducted by Owl labs during the COVID-19 pandemic, nearly 70% of full-time employees worked from home (OWL Labs, 2020).

An environment in which employees work in a hybrid or completely remote format provides a better environment for projects conducted in a "flexible" manner. It was likely that projects conducted in a traditional manner were hindered here. On the other hand, projects managed with agile, extreme or emertxe techniques could have been implemented much more easily. It should be noted here that the problem is not with the flexibility of task complexity alone, but also with the flexibility of deadlines for delivering results. The shift toward a remote work model has led employees to appreciate this multi-faceted flexibility more and thus put pressure on the employer to provide working conditions that support it (Jelena, 2022).

Because of the pandemic and the radical upheaval it caused in the labor market, many employees began to rethink their jobs, their employment conditions and what is important to them in a professional environment (Hsu, 2021; Beilfuss, 2021). According to LinkedIn Business, this caused many of them to apply for open positions internally within the company, or even seek new opportunities outside the organization where they worked. An important factor here was maintaining the ability to work remotely. Given this re-evaluation of values in working life, it can be assumed that employees in their new assessment of reality also paid more attention to the project management methodologies used by employers. Such a situation would directly contribute to how attractive a particular employer's brand appears to be in terms of the

project management methodologies it uses (Sawicki, 2022). Considering all the above, the following research hypothesis can be formulated:

H3: The COVID-19 pandemic is a moderator of the relationship between the applied project management methodologies and the attractiveness of the employer's brand perceived by job applicants (a) and employees (b).

Below figure (Figure 1) presents the diagram illustrating the adopted research hypotheses.
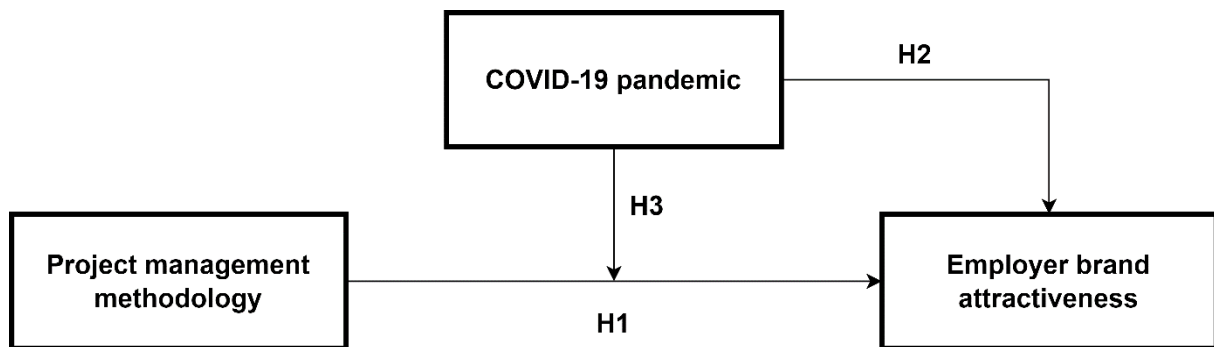

Figure 1. COVID-19 pandemic as a moderator of relationship between the applied PMM and the attractiveness of employer's brand.

Source: own research.

3. Research methodology description and results of research

Aiming to verify the proposed hypotheses quantitative research was conducted. The purpose of the research was to verify the relationship between the project management methodologies used and the perception of employer brand attractiveness among two groups of respondents - potential and current employees. In addition, each time it was examined whether the COVID-19 pandemic could be a factor that affects the strength of this relationship. Due to the two disjointed groups of respondents, two different survey tools and methods were designed. The studies were conducted using the CAWI method. The research was conducted to complete a master's thesis (Sawicki, 2022).

Study No. 1 was conducted as an experiment among potential employees. It consisted of presenting respondents (students, for whom the specifics of various management methodologies are known only in theory) with descriptions of three fictional organizations conventionally named ABC, DEF and XYZ, and then collecting their opinions on the attractiveness of the potential employer's brand. All of the organizations were described as well-established businesses that provide their services/products to customers in a project manner. The ABC organization was described as an enterprise that implements projects in a traditional methodology. The DEF organization was described as an enterprise implementing projects in an agile methodology, and the XYZ organization was described as an enterprise implementing

projects in an extreme/emertxe methodology. The descriptions did not explicitly state in which methodology the organization executes its projects, but described the characteristics of the methodology. Respondents were asked whether they would find the organization in question as an attractive employer if they were looking for a job, with each respondent evaluating the company in question twice: once to express their opinion on how attractive the employer brand would have been to them before the COVID-19 pandemic and a second time to express how they perceived the attractiveness of the organization's employer brand during the pandemic. To minimize the influence of other determinants of employer brand attractiveness, respondents were asked to express their opinion under the assumption that the industry of each organization was in line with their interests or education, and that the salary offered would be attractive. All descriptions were identical in design.

In study No. 2, the respondents were employees - people who work in project teams daily, using their organizations' preferred project management methodologies. The method used here was a questionnaire survey (CAWI). Each respondent provided answers about the last project they were involved in before the COVID-19 pandemic outbreak and about the project they were involved in during the COVID-19 pandemic. The study examined what methodology was used for projects in which the respondent was involved. Indication of the methodology was done by directly asking respondents to indicate the project methodology in question as well as through a series of questions examining the characteristic features of each project management methodology.

3.1. Study 1 - impact of project management methodologies on the perception of the employer brand attractiveness in times of a pandemic by potential employees

3.2. Data gathering process and characteristics of the research sample

The planned experiment was conducted in April and May 2022. The hypotheses were tested on a group of Polish students from universities in Wroclaw and Poznan., invited to participate in the study by a link to the survey published on social media platforms (i.e. Facebook, and LinkedIn) as well as through direct requests.

The sample was selected using a non-random method. The sampling was partly voluntary (posted on social media platforms) and partly purposive - people studying specific majors were asked to participate in the survey.

Project management is mainly known to students of management and IT-related majors - little quantitative data is available for populations that are outside these fields. However, the research presented in this paper was not closed to students of any major in order to gather additional data.

The sample consisted of 92 students from various disciplines. Almost one-third of them were studying IT-related fields (30 respondents), 16 of them were in other engineering and technology fields, 17 students were majoring in management-related disciplines, 26 students were involved in other social sciences and 3 students were from other disciplines.

In the survey, the question about the age of respondents was optional. It was answered by 69.56% of respondents. For this group, the average age was 23.61 (SD = 1.62) and the median was 24. The survey included 50 females, 41 males and 1 person who identified their gender as other.

More than half of the respondents (60.1%) declared previous experience with at least one of the project management methodologies, however it has not been checked to what extent this experience is related to the knowledge acquired during studies, and to what extent it is related to work. Detailed data on the respondents' experience with each methodology can be found in table (Table 1).

Table 1.
Percentage of respondents claiming to have experience with given methodologies

PERCENTAGE OF PEOPLE CLAIMING TO HAVE EXPERIENCE WITH						
traditional	agile	extreme/emertxe	all methodologies	two methodologies	one methodology	no experience
45%	35%	15%	8%	18%	35%	39%

Source: Sawicki, 2022.

3.3. Overview of variables

Conducting the survey, each respondent was the source for 6 statistical observations. All respondents answered the same questions about the three companies, and what's more, questions about a particular company were answered twice - firstly due to the distinction between the situation that existed before and secondly during the outbreak of the COVID-19 pandemic.

The proposed hypotheses were verified using the following research variables:

- *project management methodology* - a nominal, three-value variable: traditional methodology, agile methodology, extreme/emertxe methodology; describes the method of project management addressed by a given statistical observation; was measured by assigning each of the three organizations one of the project implementation methodologies,

- *COVID-19 pandemic* - a dichotomous variable with values of *yes*, *no*; describes whether a given statistical observation expresses the respondent's opinion of the situation before or during the outbreak of the COVID-19 pandemic,

- *overall impression* - this variable was designed to examine the attractiveness of the employer brand; it was constructed from five items in the form of quantitative variables reflecting general feelings about the organization in question, each item was rated on a 5-point Likert scale; the variable was constructed based on the literature analysis (Fisher et al., 1979; Turban, Keon, 1993);

- *intentions to take action* - this variable was designed to examine the behavioral aspects of respondents that influence perceptions of employer brand attractiveness; it was constructed from five items in the form of quantitative variables, each item was rated on a 5-point Likert scale; these items were based on previous research (Ployhart, Ryan, 1998; Schwoerer, Rosen, 1989);
- *employer brand attractiveness* - this variable was designed to examine the attractiveness of the employer brand; it was built on the *overall impression* and the *intention to take action* (computed as an average of these two variables); in contrast to the approach of the literature analysis, a component related to the prestige of the organization was not included here, since the offers presented to the respondents were descriptions of fictitious organizations; therefore, it was concluded that this component would not be relevant in measuring employer brand attractiveness under such conditions.

3.4. Descriptive statistics and reliability analysis of scales

The reliability analysis of scales was conducted using Cronbach's alpha method. The values of Cronbach's alpha for the variables *overall impression* and *intentions to take action* are very high ($\alpha = 0.925$ and $\alpha = 0.959$, respectively), which means high consistency and thus high reliability of scales. Removing any of the component items for any of the two variables would not increase Cronbach's alpha coefficient. None of the items after deletion obtains a value of this coefficient higher than without deletion. Similarly, the value of Cronbach's alpha for the research variable *employer brand attractiveness* is very high ($\alpha = 0.953$). The summary of the reliability analysis of scales is presented in table (Table 2).

The normality test for the research variables was performed using the Kolmogorov-Smirnov and the Shapiro-Wilk tests.

Table 2.
Reliability analysis of scales for study no. 1

RELIABILITY ANALYSIS		
variable	Cronbach's alpha	number of items
OVERALL IMPRESSION	0.925	5
INTENTIONS TO TAKE ACTION	0.959	5
EMPLOYER BRAND ATTRACTIVENESS	0.953	2

Source: Sawicki, 2022.

3.5. Results of the research

To verify the relationship between an *employer brand attractiveness* and *project management methodology*, a correlation analysis was performed. Since the former variable is quantitative and the latter variable is nominal the eta squared measure was used. The results of the analysis are presented in table (Table 3). Obtained result shows that the relationship between *employer brand attractiveness* and *project management methodology* is strong ($\eta^2 = 0.472$). This means that hypothesis H1a can be accepted.

Table 3.

Correlation analysis results for study no. 1

NON-LINEAR CORRELATION		
variable	EMPLOYER BRAND ATTRACTIVENESS	
PROJECT MANAGEMENT METHODOLOGY	η	0.687
	η^2	0.472
	N	552
COVID-19 PANDEMIC	η	0.026
	η^2	0.001
	N	552

N – number of observations, each respondent was source for 6 statistical observations (552 = 6 x 92).

Source: Sawicki, 2022.

To further investigate this phenomenon, it was analyzed which types of methodologies make the employer brand perceived as more attractive. For this purpose, average values were calculated for the variables overall impression, intention to take action and employer brand attractiveness by category - project management methodologies. The results of the analysis are presented in table (Table 4).

Table 4.

Average values of the variables overall impression, intention to take action and employer brand attractiveness by category for study no. 1

category	AVERAGE VALUE		
	OVERALL IMPRESSION	INTENTIONS TO TAKE ACTION	EMPLOYER BRAND ATTRACTIVENESS
TRADITIONAL METHODOLOGY	2.6696	2.3065	2.4880
EXTREME/EMERTXE METHODOLOGY	3.4359	3.3989	3.4174
AGILE METHODOLOGY	4.2978	4.5000	4.3989

Source: Sawicki, 2022.

The results obtained show that the highest average values for all three variables were achieved for agile methodologies. In contrast, traditional methodologies achieved the lowest average values for all variables. For extreme/emertxe methodologies, the values of individual averages were between those for agile and traditional methodologies.

In order to verify the relationship between *employer brand attractiveness* and the *COVID-19 pandemic*, a correlation analysis was performed, again using the eta squared measure (Tab. 3). The obtained result shows that the relationship between the attractiveness of the employer's brand and the occurrence of the COVID-19 pandemic does not exist ($\eta^2 = 0.001$). This means that there is no basis for accepting hypothesis H2a.

Based on the positively verified hypothesis H1a, it was possible to verify the change in the relationship between *employer brand attractiveness* and *project management methodology* during the *COVID-19 pandemic* as a moderator of the relationship. The testing of the moderation model was carried out using the additional tool "PROCESS macro for SPSS". Detailed data on moderation analysis are presented in table (Table 5).

Table 5.
Moderation analysis results for study no. 1

SUMMARY OF THE MODERATION MODEL					
	R^2	F	df1	df2	p
INTERACTION OF VARIABLES *PROJECT MANAGEMENT METHODOLOGY* AND *COVID-19 PANDEMIC*	0.0012	0.7135	1.0000	548.0000	0.9870

Source: Sawicki, 2022.

The interaction effect of *project management methodology* and the *COVID-19 pandemic* is not statistically significant (p = 0.3987). This means that there is no basis for accepting hypothesis H3a.

3.6. Study 2 - impact of project management methodologies on the employee's perception of the employer brand attractiveness in times of a pandemic

3.7. Data gathering process and characteristics of the research sample

The study was conducted in April 2022. Respondents were active members of project teams and were invited to participate in the study by a link to the survey published on social media platforms (i.e. Facebook, and LinkedIn) as well as through direct requests.

The sample was selected using a non-random method. The selection was partly voluntary (link to the survey on social media) and partly purposive - people from the IT industry were asked to participate in the survey. The hypotheses were tested on a group of Polish employees from various industries. The sample consisted of 83 employees. Two of the respondents were excluded from the study because they stated that they were not or had not been members of the project team. Statistical analysis and demographic data are presented for the remaining respondents.

In the survey, the question about the age of respondents was a range question. The average age was 27.07 (SD = 8.9). 42 males and 32 females participated in the survey. Detailed info on the respondents' backgrounds is presented in table (Table 6).

Table 6.
Characteristics of sample group for study no. 2

		sample	
		N = 81 n	%
age	< 25	22	27%
	25-40	59	73%
education	secondary	7	9%
	higher	74	91%
professional experience	< 2 years	5	6%
	2-5 years	56	69%
	6-10 years	12	15%
	> 10 years	8	10%
have experience working with … methodology	traditional	43	53%
	agile	69	85%
	extreme/emertxe	5	6%

N – number of respondents after exclusion.

Source: Sawicki, 2022.

3.8. Overview of variables

Conducting the survey, each respondent was the source for 2 statistical observations. All respondents answered the same questions about the employer and the project they worked in before and during the outbreak of the COVID-19 pandemic.

The proposed hypotheses were verified using the following research variables:

- *project management methodology* - a nominal, three-value variable: traditional methodology, agile methodology, extreme/emertxe methodology; describes the method of project management to which a given statistical observation applies; this variable was indirectly measured by 12 items, each item was rated on a 5-point Likert scale; the value of the variable *project management methodology* was determined by comparing auxiliary variables: *the power of traditional methodology, the power of agile methodology,* and *the power of extreme / emertxe methodology* - the one with the highest value was then selected; each of the auxiliary variables was measured as the average of the items describing the characteristics of a given methodology and the declarative item (e.g., the project in which I participate is implemented in traditional methodology);

- *COVID-19 pandemic* - dichotomous variable with values *yes, no*; describes whether a given statistical observation expresses the respondent's opinion of working on a project before or during the outbreak of the COVID-19 pandemic;

- *overall impression* - this variable was designed to examine the employer brand attractiveness; it was constructed from five items in the form of quantitative variables reflecting general feelings about the organization in question, each item was rated on a 5-point Likert scale; the variable was constructed based on the literature analysis (Ployhart, Ryan, 1998; Schwoerer, Rosen, 1989);

- *employer brand values* - this variable was designed to examine the factors that influence perceptions of employer brand attractiveness; it was constructed from twenty-two items in the form of quantitative variables, each item was rated on a 5-point Likert scale; these items were selected based on a literature analysis (Berthon et al., 2005; Dabirian et al., 2019);

- *empowerment* - this variable was designed to examine aspects related to the process of psychological empowerment that affects perceptions of employer brand attractiveness; it was constructed from five items in the form of quantitative variables, each item was rated on a 5-point Likert scale;

- *employer brand attractiveness* - this variable was designed to measure employer brand attractiveness; it was built as an average of *overall impression, brand determinants* and *empowerment.*

3.9. Descriptive statistics and reliability analysis of scales

As a first step in a research process, the reliability of scales of each variable was verified. The values of Cronbach's alpha for the variables *power of traditional methodology* and *power of agile methodology* are high ($\alpha = 0.922$ and $\alpha = 0.917$).

Cronbach's Alpha for the variable *power of extreme/emertxe methodology* is low ($\alpha = 0.211$). It may be caused by item no. 3: *The project in which I participate is implemented in extreme/emertxe methodology*, in which respondents marked high values also when their project was implemented in the eXtreme programming paradigm, which is a representative of agile project management methodology.

It can be noted that the values of Cronbach's alpha for the variables *overall impression*, *employer brand values* and *empowerment* are high ($\alpha = 0.786$, $\alpha = 0.873$ and $\alpha = 0, 802$, respectively), which indicates high consistency and thus high reliability of the scales. Removing any of the component items for any of the two variables will not increase Cronbach's alpha coefficient. None of the items after deletion obtains a value of this statistic higher than without deletion. Similarly, the value of Cronbach's alpha for the research variable *employer brand attractiveness* is high ($\alpha = 0.827$). The summary of the reliability analysis of scales is presented in table (Table 7).

The normality test for the research variables was performed using the Kolmogorov-Smirnov and the Shapiro-Wilk tests.

Table 7.
Reliability analysis of scales for study no. 2

RELIABILITY ANALYSIS		
variable	Cronbach's alpha	number of items
THE POWER OF TRADITIONAL METHODOLOGY	0.922	6
THE POWER OF AGILE METHODOLOGY	0.917	7
THE POWER OF EXTREME/EMERTXE METHODOLOGY	0.211	6
OVERALL IMPRESSION	0.786	5
EMPLOYER BRAND VALUES	0.873	22
EMPOWERMENT	0.802	4
EMPLOYER BRAND ATTRACTIVENESS	0.827	3

Source: Sawicki, 2022.

3.10.   Result of the research

In order to verify the relationship between *employer brand attractiveness* and *project management methodology*, a correlation analysis was performed using the eta squared measure. The result shows that the relationship is strong ($\eta^2 = 0.320$). This means that hypothesis H1b can be accepted.

In order to expand the study of the phenomenon, a regression analysis was also performed. This analysis was performed for the items *1 - The project in which I participate is implemented in traditional methodology, 2 - The project in which I participate is implemented in agile methodology* and *3 - The project in which I participate is implemented in extreme/emertxe*

methodology. The advantage of regression analysis over linear correlation is the ability to predict values. The results of the analysis are shown in table (Table 8).

Table 8.
Correlation analysis results for study no. 2

variable	R^2	β	N	p-value
1 - THE PROJECT IN WHICH I PARTICIPATE IS IMPLEMENTED IN TRADITIONAL METHODOLOGY	0.304	-0.556	162	<0.001
2 - THE PROJECT IN WHICH I PARTICIPATE IS IMPLEMENTED IN AGILE METHODOLOGY	0.193	0.445	162	<0.001
3 - THE PROJECT IN WHICH I PARTICIPATE IS IMPLEMENTED IN EXTREME/EMERTXE METHODOLOGY	0.030	0.189	162	0.16

N – number of observations, each respondent was source for 2 statistical observations (162 = 2 x 81).

Source: Sawicki, 2022.

The result of the regression analysis indicates that a causal relationship exists between the use of traditional methodology and employer brand attractiveness ($R^2 = 0.304$, $p < 0.001$). Moreover, the relationship is negative (β = - 0.556). There is also a causal relationship between the use of the agile methodology and employer brand attractiveness ($R^2 = 0.194$, $p < 0.001$), however weaker. The relationship is positive (β = 0.445).

In order to verify the relationship between *employer brand attractiveness* and the *COVID-19 pandemic*, a correlation analysis was performed the eta squared measure. The obtained result shows that the relationship does not exist ($\eta^2 = 0.023$). This means that there is no basis for hypothesis H2b. Detailed data on the correlations can be found in table (Table 9).

Table 9.
Correlation analysis results for study no. 2

NON-LINEAR CORRELATION		
variable	EMPLOYER BRAND ATTRACTIVENESS	
PROJECT MANAGEMENT METHODOLOGY	η	0.566
	η^2	0.320
	N	162
COVID-19 PANDEMIC	η	0,151
	η^2	0,023
	N	162

N – number of observations, each respondent was source for 2 statistical observations (162 = 2 x 81).

Source: Sawicki, 2022.

Based on the positively verified hypothesis H1b, it was possible to verify the change in the relationship between *employer brand attractiveness* and *project management methodology* with the *COVID-19 pandemic* as a moderator of the relationship. Detailed data on moderation analysis are presented in table (Table 10).

Table 10.
Moderation analysis results for study no. 2

SUMMARY OF THE MODERATION MODEL					
	R^2	F	df1	df2	p
INTERACTION OF VARIABLES *PROJECT MANAGEMENT METHODOLOGY* AND *COVID-19 PANDEMIC*	0.3611	6.6912	1.0000	158.0000	0.0106

Source: Sawicki, 2022.

It can be concluded that the interaction effect of the variables *project management methodology* and the *COVID-19 pandemic* in the employee group is statistically significant ($p = 0.0106 < 0.05$). In light of this, the variable *COVID-19 pandemic* is a moderator of the relationship between the previously described research variables in the case of current employees. This means that hypothesis H3b can be accepted.

4. Discussion

In an ever-changing world and dynamic environment, attracting new talent and maintaining existing employees can be challenging. A strong employer brand should be used as a primary tool to achieve these goals. It is worth putting substantial effort into communicating content and work culture, as they are determinants of the employer's brand attractiveness (Kalińska-Kula, Staniec, 2021). The conducted research shows that the attributes of the work processes (including PMMs used) can play important role in employer branding strategy.

As a result of the research, it was proven that there is a statistically significant relationship between the project management methodologies used and employer brand attractiveness. In addition, it was shown that there is a causal relationship between project management methodologies used with traditional characteristics and employer brand attractiveness. The fewer characteristics of traditional methodologies present in used project management methodology, the more attractive the employer brand is in the eyes of the employee. This is certainly an indicator for employers who want to retain highly qualified employees in their organization.

Study no. 2 showed no connection between the COVID-19 pandemic crisis and employer brand attractiveness. This means that employees' perceptions of the employer brand did not change due to the pandemic. This is rather a surprising finding given the literature study presented. Previously conducted studies show that the pandemic crisis affects the attractiveness of employers (Agencja MJCC, 2020). Furthermore, due to the COVID-19 pandemic employees think more deeply about their workplaces (Beilfuss, 2021; Hsu, 2021). However, although the change in the perception of the employer brand attractiveness was not demonstrated in the survey the research confirmed the moderating role of the COVID-19 pandemic on the

relationship between the employer's project management methodologies and perceptions of the employer brand attractiveness.

It has to be underlined that surprisingly the H3 hypothesis was only confirmed for a group of internal audiences of an employer brand. Upon closer inspection of the structure of the study no. 1 sample, one finds a simple explanation for this. All of the respondents were students, so it can be assumed that most of them did not yet have work experience, and certainly few of them had work experience related to their field of study. In view of this, the COVID-19 pandemic crisis could not have changed their perception of the employer brand.

5. Conclusions

The paper was devoted to analyzing the relationship between the applied project management methodologies and the perception of the employer brand attractiveness. The research was conducted on two groups of respondents: a specific group of job applicants (students) and employees. It has been shown that the crisis caused by the COVID-19 pandemic did not directly affect the perception of the employer brand attractiveness, but it is a moderator of the relationship between the applied project management methodologies and the attractiveness of the employer brand. However, although authors found basic relationship true for both groups of examined respondents, the moderating effect is valid only for group of employees.

The obtained results contribute to the practice of management, showing that among the various groups of factors determining the attractiveness of the employer brand, the attributes of the work processes (which include also the selection of project management methodology) are important as well. Organizations that apply agile project management methodologies can be more attractive to employees, especially in times of crisis and attract the more qualified specialists in the industry. Thus emphasizing the use of agile project management methodologies can be part of an employer branding strategy shaping.

However, the performed research has some limitations. As the research was conducted only in one business context (in Poland) and the analysis is based on a limited number of cases in particular groups, it should be treated rather as a pilot study. In order to generalize the results in future research larger samples should be collected. There is also space to search for factors explaining why and under what conditions the type of project management methodology affects the attractiveness of the employer brand.

References

1. Agile portfolio management: An empirical perspective on the practice in use (2015). *International Journal of Project Management, 33*, 140-152. doi:https://doi.org/10.1016/j.ijproman.2014.03.008.

2. Alnıaçık, E., Alnıaçık, Ü. (2012). Identifying Dimensions of Attractiveness in Employer Branding: Effects of Age, Gender, and Current Employment Status. *Procedia - Social and Behavioral Sciences, 58*, 1336-1343. doi:https://doi.org/10.1016/j.sbspro.2012.09.1117.

3. Beilfuss, L. (2021). Where are the workers? Millions are sick with 'long covid.'. *Where are the workers? Millions are sick with 'long covid'*. Barrons. Retrieved from: https://www.barrons.com/articles/labor-shortage-workers-millions-sick-long-covid-51638923422?siteid=yhoof2, 31.05.2022.

4. Berthon, P., Ewing, M., Hah, L.L. (2005). Captivating company: dimensions of attractiveness in employer branding. *International Journal of Advertising, 24*, 151-172. doi:10.1080/02650487.2005.11072912.

5. Charvat, J. (2003). *Project Management Methodologies: Selecting, Implementing, and Supporting Methodologies and Processes for Projects*. Wiley.

6. Dabirian, A., Kietzmann, J., Diba, H. (2017). A great place to work!? Understanding crowdsourced employer branding. *Business Horizons, 60*, 197-205. doi:https://doi.org/10.1016/j.bushor.2016.11.005.

7. Dalsfelt, S. (2021). Employer branding during COVID 19. *Employer branding during COVID 19*. Retrieved from: https://adway.ai/insights/employer-branding-during-covid-19/, 31.05.2022.

8. Hsu, A. (2021). As the pandemic recedes, millions of workers are saying 'I quit'. *As the pandemic recedes, millions of workers are saying 'I quit'*. NPR. Retrieved from: https://www.npr.org/2021/06/24/1007914455/as-the-pandemic-recedes-millions-of-workers-are-saying-i-quit?t=1655748104750, 31.05.2022.

9. Institute, P.M. (2008, October 31). *A guide to the project management body of knowledge: (PMBOK guide) - Fourth Edition*. Project Management Institute, Inc.

10. Jelena (2022). Employer branding in the post-covid times - new challenges. *Employer branding in the post-covid times - new challenges*. Retrieved from: https://www.firstbird.com/en/blog/employer-branding-in-the-post-covid-times-new-challenges/, 31.05.2022.

11. Juchimiuk, A. (2021, May). Raport: Marka pracodawcy W obliczu pandemii - MJCC: Employer branding. *Raport: Marka pracodawcy W obliczu pandemii - MJCC: Employer branding*. Retrieved from: https://mjcc.pl/blog/marka-pracodawcy-w-obliczu-pandemii, 31.05.2022.

12. Karaman, E., Kurt, M. (2015). Comparison of project management methodologies: prince 2 versus PMBOK for it projects. *International Journal of Applied Science and Engineering Research, 4*, 572-579.

13. Kerzner, H.R. (2001). *Strategic Planning for Project Management Using a Project Management Maturity Model.* Wiley.

14. Kouchaki, M. (2020, April). Why you should skip the easy wins and tackle the hard task first. *Why you should skip the easy wins and tackle the hard task first.* Retrieved from: https://insight.kellogg.northwestern.edu/article/easy-or-hard-tasks-first, 31.05.2022.

15. Kraimer, M.L., Seibert, S.E., Liden, R.C. (1999). Psychological Empowerment as a Multidimensional Construct: A Test of Construct Validity. *Educational and Psychological Measurement, 59*, 127-142. doi:10.1177/0013164499591009.

16. Kurniawan, D.T., Sopiah, Juariyah, L., Prohimi, A.H., ihda Kusnayain, Y. (2020). How COVID-19 Pandemic Changes Job Seeker Perceptions about an Indonesian Giant Startup as Top Employers. *Proceedings of the International Conference on Business and Management Research (ICBMR 2020)* (pp. 290-299). Atlantis Press. doi:https://doi.org/10.2991/aebmr.k.201222.042.

17. Laufer, A., Hoffman, E., Russell, J., Cameron, W. (2015). What successful project managers do. *MIT Sloan Management Review, 43*, 77-84. doi:10.1109/EMR.2015.7123232.

18. Mazur, P. (2020). Czy pandemia to Dobry Czas na employer branding. *Czy pandemia to Dobry Czas na employer branding.* Retrieved from: https://www.portalkadrowy.pl/koronawirus/czy-pandemia-to-dobry-czas-na-employer-branding-co-dzis-buduje-atrakcyjnosc-marek-pracodawcow-19971.html, 31.05.2022.

19. Nandakumar, N., Bhat, V.A. (2015). Employer branding and its effect on organizational attractiveness and intention to stay. *International Journal of Research in Management & Social Science, 73*.

20. Nelke, A. (2021). Impact of the COVID-19 pandemic on corporate employer branding. *Technium Social Sciences Journal, 16*, 388-393. doi:https://doi.org/10.47577/.

21. Pace, M. (2019). A Correlational Study on Project Management Methodology and Project Success. *Journal of engineering, project, and production management, 9*, 56-65.

22. Palmer, J. (2022). Turn your employer brand into a growth driver. *Turn your employer brand into a growth driver.* Retrieved from https://www.linkedin.com/business/marketing/blog/brand/turn-your-employer-brand-into-a-growth-driver, 31.05.2022.

23. Radujković, M., Sjekavica, M. (2017). Project Management Success Factors. *Procedia Engineering, 196*, 607-615. doi:https://doi.org/10.1016/j.proeng.2017.08.048.

24. Ruhe, G., Wohlin, C. (2014). *Software Project Management in a Changing World.* Springer.

25. Sawicki, R. (2022). Wpływ stosowanych metodyk zarządzania projektami na postrzeganie trakcyjności marki pracodawcy w czasach pandemii, *master thesis* (supervisor: Ph.D. Eng. Anna Zabłocka-Kluczka) - unpublished work, Wroclaw University of Science and Technology, Wrocław.

26. Spreitzer, G.M. (1995). Psychological Empowerment in the Workplace: Dimensions, Measurement, and Validation. *Academy of Management Journal, 38*, 1442-1465. doi:10.5465/256865.

27. Špundak, M. (2014). Mixed Agile/Traditional Project Management Methodology – Reality or Illusion? *Procedia - Social and Behavioral Sciences, 119*, 939-948. doi:https://doi.org/10.1016/j.sbspro.2014.03.105.

28. Team, S. (2022). How to manage your employer brand through the Coronavirus Crisis. *How to manage your employer brand through the Coronavirus Crisis*. Retrieved from: https://www.smartdreamers.com/blog/how-to-manage-your-employer-brand-through-the-coronavirus-crisis, 31.05.2022.

29. Trocki, M. (2012). *Nowoczesne zarządzanie projektami.* Warszawa: PWE.

30. Wojtaszczyk, K. (2012, January). *Employer branding czyli zarzadzanie marka pracodawcy: Uwarunkowania, procesy, pomiary.* Wydawnictwo Uniwersytetu Łódzkiego.

31. Wyrozębski, P. (2011). Badanie metodyk zarządzania projektami. W.M. Trocki (ed.), *Zarządzanie wiedzą w projektach: metodyki, modele kompetencji i modele dojrzałości* (pp. 99-170). Warszawa: Oficyna Wydawnicza SGH.

32. Zaleski, S., Michalski, R. (2020, August). Czynniki sukcesu zarządzania projektami usług IT. *Przegląd Organizacji*, 29-36.