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MANAGEMENT | RESEARCH ARTICLE

Maximizing employee engagement through artificial intelligent organizational culture in the context of leadership and training of employees: Testing linear and non-linear relationships

Maja Rožman^{1*}, Polona Tominc¹ and Borut Milfelner¹

Abstract: The paper's main aim is to analyze five constructs of organizational culture, AI-supported leadership, AI-supported appropriate training of employees, teams' effective performance, and employee engagement, and their relationship through the prism of artificial intelligence on a sample of large and medium-sized Slovenian companies. The second aim of the paper is to test the proposed model with two different statistical techniques in the scope of structural equation modeling (SEM) that enable us to assess linear (PLS-SEM) and non-linear relationships (CB-SEM) among the constructs. The empirical research included 437 medium-sized and large Slovenian companies. From each company, a CEO or owner participated in our research. The findings of the research with both techniques show that organizational culture had no impact on AI-supported appropriate training of employees and was not significant as well as that organizational culture had an impact on AI-supported leadership. The impact of AI-supported leadership on AI-supported appropriate training of employees were supported only for the PLS-SEM model. The impact of AI-supported leadership for employees on teams was positive. Contrary to that, the impact of AI-supported leadership for business solutions on teams was non-significant. In both cases, AI-supported appropriate training of employees' impact on teams was strong and positive. Also, employee engagement impact on teams was positive and statistically significant with PLS-SEM and CB-SEM methods. The research yields important implications for companies seeking to integrate artificial intelligence effectively in their operations. It emphasizes the critical role of AI-supported leadership in driving positive outcomes, such as improved employee training and enhanced team effectiveness. Companies should focus on developing leaders who can leverage AI tools to foster a skilled and engaged workforce. By adopting data-driven decision-making processes and incorporating insights from structural equation modeling, organizations can develop effective AI integration strategies. These provide valuable guidance for enhancing human resource management practices and achieving successful AI adoption across companies. The findings contribute to the formation of new views in the field of artificial intelligence implementation in the companies and show companies

a broader picture of which aspects of human resource management need to be improved.

Subjects: Environmental Studies; Environment & Business; Artificial Intelligence; Economics; Business, Management and Accounting;

Keywords: leadership; organizational culture; employee engagement; artificial intelligent

JEL classification: C1; C12; M0; M2; M21

1. Introduction

Today's business environment is extremely complex and demanding, as it requires comprehensive mastery of information, there is a strong need to acquire new knowledge, and in addition, more and more competitive products and services are coming to the market faster than was perceived in the past (Tortorella et al., 2023). This encourages companies to develop their offer rapidly under challenging conditions, as we are witnessing various business disruptions, such as the emergence of Covid-19, wars, energy costs, etc (Penco et al., 2022).

The emergence of digital advancements, known as digitization, is a crucial business trend that will shape the future economy alongside business innovations (Fayos et al., 2022). To thrive in this environment, companies must formulate effective digital strategies and prioritize the critical factors for successful digital transformation (Tortorella et al., 2023). Over the past few years, digital technologies such as mobile internet and artificial intelligence have expanded beyond their professional applications and are now a part of everyday life for people (Bajpai & Misra, 2022). Artificial intelligence is an inclusive term for various methods and solutions that imitate human intelligence (Dhamija & Bag, 2020). Artificial intelligence refers to the capability of computer systems to perform tasks that typically necessitate human intelligence, including visual perception, speech recognition, decision-making, and most importantly, the ability to interpret external data accurately. Through learning from such data, these systems acquire new skills, which enable them to adapt to diverse work scenarios and accomplish various goals and tasks (Wamba-Taguimdje et al., 2020).

Artificial intelligence has been experiencing a renaissance in recent years due to exceptional results in practice, which are the result of new methods and the availability of data in digital form (Paschen et al., 2019). For example, in manufacturing environments that are increasingly digitized, there are, therefore, more and more opportunities to introduce solutions based on artificial intelligence (Leoni et al., 2022). Artificial intelligence improves production efficiency in various areas, such as productivity, quality, maintenance, planning, and resource management (Dhamija & Bag, 2020). Moreover, artificial intelligence (automation) will benefit employees by helping with repetitive tasks or eliminating them. It will improve efficiency, minimize errors and bring greater service flexibility (Wamba-Taguimdje et al., 2020). In today's rapidly changing and increasingly challenging business environment, digital business transformation is the essential factor for maintaining competitiveness (Rachinger et al., 2019). This transformation involves adapting to the unique characteristics and ever-evolving digital technologies, which in turn requires a distinct approach to organizational structure and operations. To achieve this, organizations must undergo a cultural shift that embraces change and innovation (Dabbous et al., 2022).

Organizational culture represents an essential part of digital business transformation and has a decisive influence on the entire business transformation and its success (Munir et al., 2022). For a company to have a well-developed organizational culture in the digital economy, it must develop values and business practices that primarily focus on its rapid responsiveness to necessary changes and strong resistance to business disruptions from the environment (Hooi & Chan, 2022). Therefore, leadership that supports artificial intelligence is a necessary prerequisite for a company to cope with all business challenges and changes (Odugbesan et al., 2022). Companies

that have recognized the benefits and applied new advanced digital technologies and solutions and will use them effectively will be at a great competitive advantage. It is no longer a question of whether or not companies should invest in digitization and innovation (Lauterbach, 2019). They must decide how quickly and efficiently they will implement digital business transformation and need properly trained employees. From this point of view, companies must extensively use training and education in the field of artificial intelligence (Kambur & Akar, 2022), so that teams can work innovatively and solve problems quickly. For the them to establish such an environment, it needs engaged colleagues who will build the characteristics of this type of organizational culture through the actions of each individual. Otherwise, companies will have great difficulties in their business transformation in the conditions of digital business (Wijayati et al., 2022).

For companies to maximize the advantages of AI, they must cultivate a data-driven culture, where business analytics are integrated into the organizational culture and shared among all employees throughout the entire organization (Carillo et al., 2019). Organizational culture is an integrated system of values, norms, rules, attitudes, beliefs, methods of implementing processes and procedures, employee behavior, common goals, and the types and forms of interactions both within the business system and with the external environment (Omama Koranteng et al., 2022; Shea et al., 2021). With the help of all the mentioned elements, the organizational culture also develops, strengthens, preserves, and, at the same time, has a significant impact on the formation of appropriate leadership in the company (Junça Silva & Coelho, 2022). Various authors emphasize the importance of organizational culture and its impact on leadership, but there is little research about organizational culture that tends to the development to support artificial intelligence, its impact on the leadership that supports artificial intelligence, and the establishment of a new way of training employees with a touch of artificial intelligence. In today's challenging and ever-changing business environment, digital business transformation is crucial for maintaining competitiveness. This transformation necessitates a distinct organizational structure and operations, which are characterized by rapidly evolving digital technologies. To achieve this, organizations must undergo a cultural overhaul that involves modifying the set of beliefs, values, habits, and experiences that define the organization through its employees. Renovating the organizational culture is one of the most significant challenges in ensuring a successful digital business transformation (Kambur & Akar, 2022). Also, Dutta and Rangnekar (2022a), Meslec et al. (2020), Dutta and Rangnekar (2022b) emphasize that teamwork is important for companies, especially in today's highly digital world. Today's business environment is significantly more complex, volatile, uncertain and complicated than it was just a few years ago. Managing the interdependence of companies is becoming increasingly complex due to the rapid emergence of new revolutionary technologies. Moreover, the competition for talented employees who possess the ability to convert their creativity into solutions and effectively meet customer needs is intensifying. For a successful team, selecting individuals with different professional skills and personality types who complement each other is necessary. According to Kossyva et al. (2022), Wijayati et al. (2022), Shelke and Shaikh (2023), engaged employees are motivated, satisfied, productive, dedicated to their work, new ideas, innovative solutions, and loyal to the company. This is also emphasized through the internal marketing concept that consists of three interrelated stages including employee focus, customer focus, and company focus (Kimura, 2017).

With this research we want to fill a gap in research results related to the importance of leadership that supports artificial intelligence and its impact on successful teamwork and the consequent increase in the work engagement of each employee. In a work environment that is becoming increasingly diverse and rapidly changing, engaged employees are key for a company. According to our knowledge up to now there is a limited research comprehensively and systematically based on theoretical knowledge or studies about an organizational culture that supports artificial intelligence, leadership that supports artificial intelligence, appropriate training for employees, teams, and employee engagement. From this point of view this interdisciplinary study can contribute in the field of AI supported human resource management as well as in the field of internal marketing.

Thus, this research aims to address a significant research gap by exploring the relationship between five key constructs: organizational culture, AI-supported leadership, AI-supported appropriate training of employees, teams' effective performance, and employee engagement in the context of artificial intelligence implementation in Slovenian companies. The motivation behind this study lies in the growing importance of artificial intelligence and the need to understand how these constructs interact within the AI paradigm. By investigating this relationship, the study seeks to contribute new perspectives and insights into the field of AI implementation in companies and shed light on aspects of human resource management that may require improvement. The primary research question of this study is to understand how organizational culture, AI-supported leadership, AI-supported appropriate training of employees, teams' effective performance, and employee engagement are interrelated in the context of artificial intelligence implementation. The research objectives are therefore as follows: (1) to analyze the impact of organizational culture on AI-supported training of employees, (2) to analyze the impact of organizational culture on AI-supported leadership, (3) to investigate the impact of AI-supported leadership on AI-supported appropriate training of employees, (3) to assess the impact of AI-supported leadership on team effectiveness, (4) to analyse the impact of AI-supported appropriate training of employees on teams' effective performance, and (5) to investigate the impact of teams' effective performance on employee engagement.

Digitization is a great opportunity for innovative and development-oriented companies, but it requires properly trained personnel and strategic direction of the management, as well as the proactive introduction of changes. The development of organizational culture is a radical and systemic process. Such a deep change as the digital business transformation needs an environment that is positively oriented to provide the basis for customer focus, introducing digital technological innovations, and promoting integration and partnerships at the level of the entire business ecosystem. For a company to establish such an environment, it needs aware, motivated, and engaged employees who will build the characteristics of digital culture through the actions of each individual. Otherwise, the attempt at digital business transformation can be doomed to failure.

According to that, the first goal of our study was to propose a model including all the above-mentioned constructs and to analyze their relationships, on a sample of large and medium-sized Slovenian companies. The strategy of the information society is one of the key strategic documents to eliminate development gaps and for faster development of digital transformation in all areas (Republic of Slovenia, 2023). The increasingly tough global technological race dictates intensive and innovative use of digital technologies in all areas of social life in the European Union and the Republic of Slovenia (Statistical Office of the Republic of Slovenia, 2021). Timely and correctly carried out digitization can significantly contribute to a more competitive economy and to a more efficient state and society, thereby affecting practically every individual, company, or state institution. Digital transformation is led and directed by the market, the user, and the customer. Individualized user experience is at the fore, and digitization makes it possible. In this area, Slovenian companies still have many challenges as the added value increases in the segments of development, marketing, and adaptation of services or products to the customer.

The second goal of our study was to test the proposed model with two different statistical techniques in the scope of the structural equation modeling (SEM) that would enable us to assess linear as well non-linear relationships among the constructs. The majority of the authors use the SEM model when analyzing constructs' interrelations, but they do not pay attention to compare the possible differences between linear or non-linear relationships among the constructs. A non-linear relationship between two variables is characterized by a varying slope of the curve representing the relationship, as one of the variables changes (Tabachnick & Fidell, 2013). Conversely, a linear relationship occurs when two variables have a direct correlation, meaning that a change in the value of x results in a proportional change in y (Johnson & Wichern, 2007). A linear relationship is represented by a straight line on a graph when the values of x and y are plotted. This approach

helps to comprehend how the variation between two factors influences the outcome and how they are interrelated (Hair et al., 2018). For additional originality of the article, and to fill the gap in the field of methodological research, we investigated whether there are differences between linear and non-linear relationships with the mentioned multidimensional constructs. Therefore, this study also contributes to the existing literature with new insights related to the implementation of artificial intelligence in the company and the findings of whether non-linear models can provide a better explanation of research results.

Moreover, this research aims to address a critical research gap in the field of methodological research related to the implementation of artificial intelligence (AI) in companies. By investigating potential differences between linear and non-linear relationships among multidimensional constructs such as organizational culture, AI-supported leadership, AI-supported appropriate training of employees, teams' effective performance, and employee engagement, the study offers new and original insights to the existing literature. One of the research objectives of this study is to explore whether there are differences between linear and non-linear relationships among the multidimensional constructs under investigation.

The implications of this research have wide-ranging implications for organizations seeking to effectively integrate artificial intelligence (AI) and optimize their human resource management practices. The study underscores the pivotal role of organizational culture in facilitating successful AI implementation. The findings underscore the significance of designing tailored employee training programs that incorporate AI methods. Organizations should identify specific skill gaps and knowledge areas where AI can enhance employee performance and productivity. The study highlights the positive relationship between employee engagement and team performance. Organizations should prioritize employee engagement efforts, providing opportunities for professional growth, recognition, and meaningful work experiences. Engaged employees are more likely to collaborate effectively within teams, leading to higher levels of productivity and performance. The research provides practical guidance for organizations looking to navigate the complexities of AI implementation. By considering the interplay between organizational culture, AI-supported leadership, employee training, team effectiveness, and employee engagement, companies can develop more effective AI integration strategies. These insights can inform decision-makers, guiding them in adopting AI technologies strategically and aligning AI initiatives with their broader organizational goals. The research highlights the importance of data-driven decision-making in the context of AI integration. The use of advanced statistical techniques like PLS-SEM and CB-SEM demonstrates the value of employing comprehensive data analysis to gain deeper insights into the relationships between key constructs. While the research was conducted on Slovenian companies, its implications extend beyond regional boundaries. The findings offer valuable lessons for organizations globally, shedding light on how AI influences various aspects of human resource management and team dynamics. Organizations from diverse industries and countries can benefit from these insights to improve their AI integration practices and achieve enhanced performance outcomes.

2. Literature review, conceptional framework and hypothesis

2.1. *Organizational culture as a condition for successful training and leadership through the prism of artificial intelligence*

Organizational culture includes a comprehensive system of norms, values, beliefs, and attitudes of employees in the company, which determine the way of behavior and response to changes in the company (Juliana et al., 2021). By knowing the characteristics of the organizational culture, the leader can more easily lead his employees and direct them toward the company's desired goals (Krajcsák, 2018). Creating an excellent organizational culture requires constant innovations and continuous improvement of already efficient processes, optimal procedures, and a very high intellectual and financial capital (Munir et al., 2022). A stimulating organizational culture that enables intensive learning and, in particular, innovation, rapid adaptation to changes, and holistic development of employees will always increase the company's growth, development, profitability,

and competitiveness (Hooi & Chan, 2022). On the other hand, an organizational culture that limits the development of employees does not enable high-quality products and services, hinders learning, will always inhibit the growth and development of the organization as a whole, and will reduce competitiveness (Juliana et al., 2021). Shea et al. (2021) and Hautala-Kankaanpää (2022) summarize that technology is important but not the main condition for the successful digitization of a company's business. For this, the company needs an organizational culture that encourages innovation, embraces change, and supports artificial intelligence. Encouraging employees to embrace a digital mindset is vital to a company's long-term success in the digital business landscape (Matricano et al., 2022). Ignoring the significance of organizational culture could hinder a company's progress in digitization and pose significant challenges to achieving success. If a company wants to change its culture, it must focus on its employees (Parent & Lovelace, 2018). The technology has been available for several years, but its deployment remains challenging. Therefore, the company must offer a range of educational programs in the digitalization field, especially in the artificial intelligence field, for all employees (Lauterbach, 2019).

Digitization is all about employees, processes and technology. It is often necessary to make big changes in employees' attitudes toward innovation. But when a company finds a winning formula and succeeds in changing the culture that supports artificial intelligence, it will be successful and competitive (Dhamija & Bag, 2020; Tortorella et al., 2023). Westerman et al. (2011) define digital transformation as the use of digital technology to improve a company's business results radically. A similar digital transformation is understood by Liu et al. (2011) as a special organizational transformation that integrates digital technologies and business processes within the company. Organizational transformation refers to simultaneous major changes in key areas of activity (e.g., strategy, organizational structures, business models, and business processes) that are implemented quickly (Wamba-Taguimdjé et al., 2020). In summary, digital transformation can be defined as changing key elements of business, including business models, strategy, business processes, organizational structures, and organizational culture, by leveraging the capabilities of modern digital technology (Leoni et al., 2022). Introducing a new information solution and digitizing business processes is a big challenge, but it is even bigger to change the habits of employees, educate them, motivate them to change, and raise their digital competencies to a higher level. A big obstacle in this is unclear expectations of what changes digitization will bring and what benefits the company will get from it (Rachinger et al., 2019). Therefore, it is important to create a clear strategy for the digitization of business and define the company's goals. Employees need to be shown the benefits and advantages of a different way of working and the use of new solutions to become familiar with the benefits of changes in the field of artificial intelligence (Dabbous et al., 2022). Companies must recognize that artificial intelligence is primarily a business challenge that demands changes in organizational culture, personnel, business processes, and business models (Munir et al., 2022).

Shortly, artificial intelligence will have a decisive impact on the competitiveness and productivity of companies worldwide, so companies must create a culture that supports the business processes in the field of artificial intelligence (Kambur & Akar, 2022). Digital organizational culture encompasses the values and distinctive sets of behaviors that determine how things are done in a company (Shea et al., 2021). A contemporary digital organizational culture furnishes all employees with behavioral guidelines that steer individuals towards appropriate behavior and decision-making, thus accelerating the realization of the organization's integrated business digital strategy (Wijayati et al., 2022). A mature digital organizational culture that bolsters an integrated business digital strategy plays a crucial role in supporting and expediting digital business transformation (Pangarso et al., 2022). To develop digital organizational culture, the company should adopt values and business practices that primarily focus on its rapid response to necessary changes and strong resistance to business disruptions (Hautala-Kankaanpää, 2022). In doing so, the company should develop a high sensitivity and responsiveness to the customer's needs, the development of digital leadership, innovation and creation of new ideas, a series of training in the field of digital technologies, a positive attitude of employees towards the introduction of new (advanced) digital

technologies and a superior experience of employees with the company (Dhamija & Bag, 2020; Fayos et al., 2022; Tortorella et al., 2023).

A supportive and learning-oriented organizational culture has been found to positively influence the effectiveness of AI-driven training initiatives (Tortorella et al., 2023). Yu et al. (2023) reported that companies with a culture that values continuous learning and development are more likely to embrace AI technologies for employee training purposes. Employees in such organizations are encouraged to participate in AI-supported training programs, which can lead to improved skills, enhanced knowledge, and increased job performance. Furthermore, Bilro et al. (2023) demonstrated that an inclusive organizational culture that fosters collaboration and open communication positively influences employees' willingness to engage with AI technologies for training, leading to higher levels of AI adoption and skill development. Tharkude (2023) summarize that an innovative and risk-taking organizational culture is conducive to experimenting with AI-powered training solutions. Organizations that encourage experimentation and view failures as opportunities for learning are more likely to invest in AI-supported training initiatives and leverage advanced technologies to enhance the learning experience (Yu et al., 2023; Tharkude, 2023). According to this, the following two hypotheses are proposed:

H1: Organizational culture has a positive impact on AI-supported training of employees.

H2: Organizational culture has a positive impact on AI-supported leadership.

2.2. AI-supported leadership in a turbulent work environment for better training of employees and successful work-teams

The company must cope with a rapidly changing work environment, as new software solutions appear practically every day. On the other hand, many companies face difficulties in the digital transformation of their business (Shaffer et al., 2020). According to the Statistical Office of the Republic of Slovenia (SURS, 2021), 60% of companies with at least ten employees and the self-employed face a problem in the digital transformation of their business. Almost a third lack adequate personnel or skills, and 31% have problems due to a lack of financial resources. Artificial intelligence technologies are used by 12% of companies. SURS (2021) notes that almost a third of companies lack the necessary personnel or skills for digital transformation. 17% of companies with at least ten employees and the self-employed have developed and approved a business strategy for the digital transformation of the company's operations. Among small companies, 14% have this type of strategy, among medium-sized companies 29%, and among large companies, 48%. According to Wijayati et al. (2022), for a company to successfully implement artificial intelligence in the business processes, its leaders should support artificial intelligence and design appropriate training programs for employees. Accelerated digital transformation leads to a sharp increase in the need for ICT experts who develop and implement digital technologies and solutions to increase productivity and maintain a competitive advantage (Chen et al., 2022). Implementing artificial intelligence in a company is a complex undertaking that presents excellent strategic opportunities and challenges in the field of data and analytics (Leoni et al., 2022). The leader must design appropriate training programs in artificial intelligence technology, as the company needs qualified employees for data and analytics at the right time in the right place (Maity, 2019). In addition to training, working in a team leads to the exchange of various solutions and innovative ideas. All team members should work equally creatively and enthusiastically to find ideas, solve problems and achieve the company's goals effectively (Qamar et al., 2021). Employee training curricula should focus on technical knowledge and practical methods. The initial stage of the training program must provide employees with foundational analytical knowledge, comprising a basic comprehension of how data and analytical techniques can address common business challenges, and a broad understanding of the data and analytics development process (Chaubey et al., 2022; Wamba-Taguimdjé et al., 2020).

Solving business challenges using artificial intelligence should not be limited to independent business units but should be integrated into the entire company (Dabbous et al., 2022). The adoption of artificial intelligence requires technical changes, such as building data ecosystems, and depends on trust in artificial intelligence and its integration into business workflows. Every employee must understand artificial intelligence and how it can affect the company (Kambur & Akar, 2022; Wijayati et al., 2022). The digital transformation and success of companies is not only based on technological solutions but on the ability of people and companies to use them (Junça Silva & Coelho, 2022). It is a strategic area of the company's development. The transformation includes all aspects of business operations and company departments, including HR and developing relevant employee competencies (Eriksson et al., 2020). The leader has a significant influence on the work of employees and the formation of effective teams and should make the company's business departments aware what opportunities the use of artificial intelligence brings for the entire company (Meslec et al., 2020). When combined with a suitable data analytics workflow and the right skills, tools, and techniques, companies grow to the highest level of AI maturity and competitive advantage (Dutta & Rangnekar, 2022a).

Shick et al. (2023) and Jatobá et al. (2023) noted that AI-enhanced learning tools under leaders' guidance could increase training efficiency, suggesting a positive correlation between AI-supported leadership and employee training. However, it also highlighted the need for leaders to create a supportive environment for technology adoption, illustrating the interplay between human and artificial intelligence. The influence of AI-supported leadership on team performance is equally profound. AI can automate mundane tasks, thus allowing teams to focus on complex problems and strategic thinking (Upadhyay et al., 2023). Furthermore, AI-powered tools can support data-driven decision making, enhancing team collaboration and reducing conflict (Jatobá et al., 2023). Giuggioli and Pellegrini (2023) argue that leaders who actively engaged with AI-driven performance analytics were more likely to identify skill gaps in their teams. Subsequently, they provided targeted training opportunities, resulting in continuous improvement in team performance metrics over time. Therefore, the following hypotheses are proposed:

H3: AI-supported leadership has a positive impact on AI-supported appropriate training of employees.

H4: AI-supported leadership has a positive impact on teams' effective performance.

2.3. AI-supported appropriate training for building high-performing teams to increase employee engagement

Artificial intelligence systems require a lot of development and testing, and it often happens that all possible scenarios cannot even be predicted. Market conditions demand ever greater responsiveness of the entire company (Wilkens, 2020). The gaps between different company levels are no longer sustainable in the long term. New technologies are accelerating convergence in information and operational technologies (Mukherjee, 2022). Artificial intelligence tools, which are becoming increasingly accessible, only increase the pressure by enabling the processing of large amounts of data and automated learning. Companies that use tools are more innovative and competitive (Wijayati et al., 2022). Artificial intelligence and a turbulent environment demand more significant commitment from companies, a better culture, new ways of management, modernization of organizational structures and processes, new ways of training employees and successful teamwork (Eriksson et al., 2020; Hautala-Kankaanpää, 2022; Matricano et al., 2022).

The appropriate training of employees in the field of artificial intelligence affects the team's increased productivity. In the case when the company offers appropriate trainings for its employees, the employees feel valued and have the feeling that the company invests in their development, which promotes a sense of belonging to the company and the desire to exchange various business solutions with other employees of the company (Dhamija & Bag, 2020; Maity, 2019;

Paschen et al., 2019). This way, a successful team is strengthened in which employees exchange their opinions, ideas, and knowledge. Successful teams have characteristics such as strong leadership, precisely set goals, the ability to respond quickly, and free communication, which increases the work commitment of employees (Reis & Puente-Palacios, 2019). When the company's goals are determined, it is necessary to encourage each member to contribute to the team. Employees must have various training programs available that relate to the company's new business areas (Solís & Mora-Esquível, 2020). Today, creativity is often crucial for the survival of the team and the entire company. New ideas, new perspectives on production, products, and the way of working bring companies opportunities for more successful competition. Each team can develop creative processes that help it improve efficiency and solve tasks better (Mayer et al., 2023).

Successful teams are those whose achievements exceed the sum of individual members' knowledge, skills, and expertise, increasing their work engagement (Wijayati et al., 2022). Engaged employees do their work with passion and a deep connection with the company. Engaged employees are motivated, committed, loyal, and satisfied. In a work environment that is becoming increasingly diverse and rapidly changing, engaged employees who believe in the company, its products/services, speak positively about the company, and are true ambassadors of the employer's brand are key for the company (Davis & Van der Heijden, 2023; Imam et al., 2022; Parent & Lovelace, 2018).

Schuhbert et al. (2023) summarize that AI-supported training can promote a learning culture within teams, encouraging continuous improvement and adaptability. Employees who are actively engaged in ongoing learning and development are more likely to feel motivated and committed to their team's success (Kambur & Yıldırım, 2023). High-performing teams can significantly impact employee engagement, fostering a sense of accomplishment and job satisfaction. Also, when teams achieve their goals and experience success, employees feel more engaged and committed to their work (Arslan et al., 2022). Therefore, it is hypothesized:

H5: AI-supported appropriate training of employees has a positive impact on teams' effective performance.

H6: Teams' effective performance have a positive impact on employee engagement.

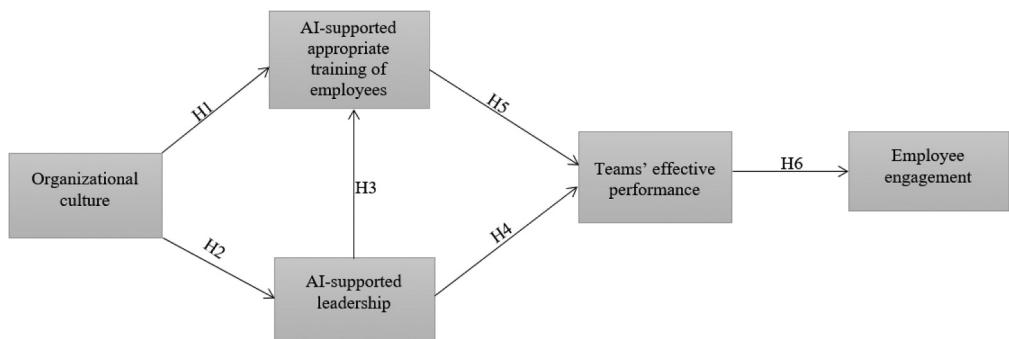
Constantly changing external factors of the business environment (global crisis, globalization, digitization, technological development, transition to a society of creativity) and internal factors (culture and organization) force companies to constantly cope with and adapt in advance to the rapid and key changes dictated by the environment. For a company to develop successfully under conditions of rapid change, the leadership of the company must not only be aware of the importance of changes but must also be able to implement them in their company successfully. Figure 1 shows the conceptual model with all multidimensional constructs, which are important for the company's successful operation in today's turbulent environment with the use of artificial intelligence and increased employee engagement.

3. Methodology

3.1. Data and sample

The main survey involved random selection of 437 medium-sized and large Slovenian companies from the AJPES (Slovenian Business Register) database of business subjects, based on the standard classification of company activities. This is how we arrived at the share of all medium-sized and small companies in Slovenia, which numbered 2,000. Thus, the response rate of companies prepared to participate in the study was 22%. The CEO or owner of each company participated in the research by completing an online questionnaire, which was sent via email. These informants were chosen because of their key role in decision-making and leadership within their respective

Figure 1. The conceptual model and hypotheses.



organizations, being able to provide a relevant information for the research. By targeting this specific group, the research aimed to gather insights into the impact of AI-supported employee training on teams' effective performance and its association with employee engagement. The sample frame was taken Of the participants, 26.1% were from manufacturing, 16.7% from trade, maintenance, and repair of motor vehicles, 11.7% from information and communication activities, 11.7% from professional, scientific, and technical activities, and 11.2% from financial and insurance activities. The remaining CEO or owners were from health and social care (4.3%), other diversified business activities (4.2%), real estate business (3.2%), transportation and storage (3.0%), catering (2.7%), education (1.8%), construction (1.6%), agriculture and hunting, forestry, fishing (1.4%), and mining (0.4%). The largest proportion of companies in the sample were large companies (55.4%), while medium-sized enterprises comprised 44.6%.

According to work experiences of the CEOs, 71.6% of respondents with work experience from 31 to 40 years were included in the research. Respondents with work experience from 21 to 30 years were represented with 24.5%, followed by respondents with work experience of more than 41 years (2.3%), and respondents with a work experience from 11 to 20 years (1.6%). According to gender, 71.4% of male and 28.6% of female CEOs participated in the study.

3.2. Measurement instrument

Measurement instrument was developed in two phases. In the first phase according to the literature review, several possible measurement instruments were identified in the literature. The scales were then adapted and checked for content validity. The content validity was established by engaging four expert judges from diverse fields: quantitative analysis, management, AI, and marketing research. These experts were provided with concept definitions and asked to evaluate the extent to which each question effectively measures the intended construct. Afterwards the items were translated into Slovenian language following the back-translation procedure. Data was collected using an online survey.

To measure the basic constructs the respondents were asked to express their agreement with the listed statements on a 5-point Likert-type scale, (1=strongly disagree, and 5=completely agree).

Items for construct *organizational culture* were adopted from Dabbous et al. (2022), items for construct *AI-supported appropriate training of employees* were adopted from Pillai and Sivathanu (2020), items for *teams' effective performance* were adopted from Mikalef and Gupta (2021), and items for constructs *AI supported leadership* and *employee engagement* adopted from Wijayati et al. (2022).

3.3. Validity and reliability of the scales

Convergent validity, discriminant validity, and reliability of the constructs were tested within the specified measurement model using AMOS 28. The fit assessment of the measurement model

showed a significant chi-square value (χ^2 (137) = 556.190; $p < .05$), which indicates a non-perfect fit. Since χ^2 in measurement and structural models frequently results in an imperfect fit, according to some researchers (Bollen, 1989) it may be an inappropriate standard when dealing with complex models and large samples. Other alternative fit indices showed appropriate or good fit: NFI = .916; IFI = .936; TLI = .920; CFI = .936; RMSEA = .084, considering the suggested thresholds by representative authors in the field: RMSEA < .1 CFI > .90, NNFI > .90, NFI > .90 (Byrne, 1994; Hu & Bentler, 1999; MacCallum et al., 1996).

We note that in the final measurement model, AI-supported leadership was included as the two-factor model, since the analyses showed that the two-factor model was better than the one-factor model. First factor measured the level of leadership to support AI initiatives and are commitment to AI projects, openness of communication to solve employees' problems on the spot and it was named as AI-supported leadership for employees. The second reflected the ability to understand business problems, the ability to anticipate future business needs of functional managers, suppliers and customers and proactively design AI solutions to support these needs, therefore we named it AI-supported leadership for business solutions.

Items, their means, and standard deviations, together with average variances extracted (AVE) and composite reliability (CR) are presented in Table 1. CR coefficients in all cases exceeded the suggested threshold of .7. Concerning the convergent validity, all item loadings were significant and higher than the recommended level of .6, and AVE coefficients were also higher than .6, meaning that we can support the convergent validity of the scales.

Discriminant validity was tested with the Fornell and Larcker (1981) test and with the procedure recommended by Henseler et al. (2015) through which we assessed the heterotrait-monotrait ratios of correlations (HTMT) for all constructs. The correlation between the latent constructs and square roots of AVE is presented in Table 2. As can be observed, square roots of AVE were in all cases higher than correlations between the underlying constructs. In Table 3, also all HTMT ratios of correlation are lower than .85, meaning that discriminant validity was achieved.

4. Results of linear and non-linear impact tests

We used two statistical programs, WarpPLS 7.0 and AMOS for data analysis. Linear relationships were tested with AMOS, and non-linear relationships with WarpPLS. The recent availability of software tools for non-linear path analyses, such as WarpPLS, allows researchers to consider non-linearity when estimating coefficients of association among linked variables (Kock, 2019). WarpPLS employs a curve-fitting technique to estimate both linear and nonlinear relationships by attempting to fit an S-shaped or U-shaped curve to the data. As natural and human behavior relationships are rarely linear, the identification of an S- or U-shaped curve by WarpPLS can provide a more precise estimation of the relationships between latent variables (Karimi & Walter, 2016). AMOS utilizes structural equation modeling (SEM), which is also referred to as analysis of covariance structures or causal modeling, as a general approach to data analysis. This method encompasses numerous traditional techniques, such as the general linear model and common factor analysis (Arbuckle, 2019).

To test the hypotheses, we implemented standard procedures and fit indices available in AMOS, such as χ^2 test, NFI, IFI, TLI, CFI, and RMSEA. Cut off criteria for single indices were used in accordance with the relevant literature (Byrne, 1994; Hu & Bentler, 1999; MacCallum et al., 1996). The quality of the structural model was assessed with the R-squared coefficients and the strengths of the impacts with γ and β path coefficients between latent variables.

In regards to Warp PLS, we assessed multicollinearity using variance inflation factors (VIF) with a VIF < 5.0 criterion as suggested by Hair et al. (2010). The quality of the structural model was evaluated using R-squared and adjusted R-squared coefficients, which indicate the percentage of explained variance in the structural model, as well as the Stone-Geisser Q-squared coefficient to

Table 1. Items, their means, standard deviations, average variances extracted (AVE) and composite reliability (CR)

Constructs and Items	Mean	Standard deviation	Estimate	CR	AVE
<i>Organizational culture</i>					
2.We used AI technology in any part of our business.	3.76	1.128	.912	.843	.643
3.There is a high level of agreement about how we do things in the company	3.76	1.164	.808		
4.There is a shared vision of what company will be like in the future	4.05	.936	.724		
5.Policies of the company are clearly defined.	3.81	1.140	.868		
<i>AI-supported appropriate training of employees</i>					
5.Employee professional knowledge will be kept up to date with in-company training courses through artificial intelligence technology.	4.22	.683	.655	.898	.750
6.When the in-company training courses take place with artificial intelligence technology. the restrictions regarding to place where the training will be given will be removed.	3.90	.819	.95		
7.Employees are provided with the required training to deal with AI applications	3.94	.771	.959		
<i>Employee engagement</i>					
1.Using AI enhance employee effectiveness	3.46	1.162	.928	.935	.744
2.Employees are engaged to the quality of their work.	3.20	1.266	.894		
3.Employees do their work with passion.	3.41	1.107	.928		
4.Employees are engaged to achieve successful business results.	3.80	1.136	.694		
7.Employees are engaged for business ideas and solutions.	3.39	1.141	.846		
<i>Teams' effective performance</i>					
2.The team members work without a leader	4.28	.615	.735	.867	.685
3.The team members coordinate the work themselves	3.92	.735	.879		
4.Team members solve problems independently	3.76	.776	.862		
<i>AI-supported leadership for employees</i>					
5.Employees have strong leadership to support AI initiatives and are commitment to AI projects.	3.81	1.084	.856	.873	.776
6.In the company prevails open communication and we solve employees' problems on the spot.	3.72	1.035	.838		

(Continued)

Constructs and Items	Mean	Standard deviation	Estimate	CR	AVE
AI-supported leadership for business solutions					
2.We are able to understand business problems and to direct AI initiatives to solve them.	3.78	1.234	.825	.835	.717
3.We are able to anticipate future business needs of functional managers, suppliers and customers and proactively design AI solutions to support these needs.	3.70	1.142	.933		

Fit indices: $\chi^2(137) = 556.190$; $p < .05$; NFI = .916; IFI = .936; TLI = .920; CFI = .936; RMSEA = .084

determine the predictability of the model. Acceptable predictive validity in connection with an endogenous latent variable is suggested as being $Q^2 > 0$ (Kock, 2019). We also used the criterion of quality indicators (model fit and quality indicators) such as APC, ARS, AARS, AVIF; GoF; SPR; RSCR, and NLBCD (Kock, 2019, 2021) to test the model. To test the hypotheses, we used the path coefficient associated with a causal link in the model (y) and the Cohen effect indicator (f^2), with .02, .15, and .35 indicating small, medium, and large effect sizes, respectively (Kock, 2019).

To test the hypotheses, we specified a structural model in CB-SEM and PLS-SEM with AMOS and Warp PLS. The covariance-based structural model was estimated using the maximum likelihood estimation. The fit assessment of the model yielded a significant chi-square value ($\chi^2(142) = 541.20$; $p < .05$) and indicated a non-perfect fit. Once again, other fit indices were used since χ^2 due to the complexity of the model, and the large sample size may be an inappropriate standard (Bollen, 1989). Those fit indices were in the suggested intervals: NFI = .916; IFI = .936; TLI = .922; CFI = .936; RMSEA = .082. The same structural model was also specified in a Warp PLS. The fit indices also showed appropriate fit, namely: APC, ARS, and AARS were all significant at $p < .001$, and other indices were inside the suggested intervals (AVIF = 1.467; GoF = .461; SPR = .889; RSCR = .997 and NLBCDR = 1.000).

In Table 4, the results of testing the hypothesis with both methods are presented. As can be observed from column “Type of relationship Warp PLS”, all the relationships with the PLS-SEM method were estimated as non-linear and are presented in Appendix 1. As already mentioned, we also proposed linear relationships between latent variables with a CB-SEM technique. For example, the results presented in Table 4 indicate that organizational culture does not impact on AI-supported appropriate training of employees. This finding suggests that there is no direct linear relationship between these two variables. However, a non-linear relationship is observed, specifically U-shaped. This indicates that there might be an optimal level of organizational culture that leads to effective AI-supported training, with the effect diminishing beyond this optimal point. On the other hand, there is a positive and statistically significant impact of organizational culture on AI-supported leadership for employees ($p < 0.001$). The relationship between organizational culture and AI-supported leadership for employees is also non-linear, exhibiting an S-shaped pattern. This means that as organizational culture increases, the effect on AI-supported leadership for employees also increases, but there is a point where the effect levels off. Similarly, a statistically significant non-linear (U-shaped) relationship is found between organizational culture and AI-supported leadership for business solutions ($p < 0.001$). This suggests that an optimal level of organizational culture may lead to effective AI-supported leadership for business solutions. Furthermore, the relationship between AI-supported leadership for employees and AI-supported appropriate training of employees is statistically significant ($p < 0.001$) and non-linear (S-shaped).

Table 2. Correlations between latent variables

	1.	2.	3.	4.	5.	6.
1. Organizational culture	.802*					
2. AI-supported appropriate training of employees	.039	.866*				
3. Teams' effective performance	.113	.767	.828*			
4. Employee engagement	.039	.193	.203	.862*		
5. AI-supported leadership for employees	.339	.337	.313	.005	.881*	
6. AI-supported leadership for business solutions	.193	.760	.717	.193	.479	.847*

*Square roots of AVE.

As AI-supported leadership for employees increases, the effect on appropriate training of employees also increases, but there is a point where the effect levels off. Conversely, the relationship between AI-supported leadership for business solutions and AI-supported appropriate training of employees is not statistically significant in a linear context. However, it exhibits a non-linear (U-shaped) pattern, indicating that there might be an optimal level of AI-supported leadership for business solutions that leads to effective AI-supported appropriate training of employees. Furthermore, a statistically significant non-linear (S-shaped) relationship is observed between AI-supported leadership for employees and teams' effective performance ($p < 0.001$). On the other hand, there is no statistically significant relationship between AI-supported leadership for business solutions and teams' effective performance. The analysis shows a non-linear (U-shaped) pattern, suggesting that no direct linear relationship exists between these two variables. Moreover, the relationship between AI-supported appropriate training of employees and teams' effective performance is statistically significant ($p < 0.001$) and non-linear (S-shaped). As AI-supported appropriate training of employees increases, the effect on teams' effective performance also increases, but there is a point where the effect levels off. Lastly, the relationship between teams' effective performance and employee engagement is statistically significant ($p < 0.001$) and non-linear (U-shaped). This indicates that there is an optimal level of teams' effective performance that leads to higher employee engagement, with the effect diminishing beyond this point.

Additionally, R squared coefficients for endogenous latent variables estimated with both methods are presented in Table 5.

Concerning H1, organizational culture had no impact on AI-supported appropriate training of employees, and was not significant at the $p < .05$ level. The same result was obtained with both methods. Therefore, we rejected H1. Contrary to that, H2 was supported, since both estimations techniques yielded positive and statistically significant results ($p < .001$) for the impact of organizational culture on AI-supported leadership for employees and AI-supported leadership for business solutions (Table 4).

We supported H3 only for the PLS-SEM model. As can be observed from Table 4, AI-supported leadership for employees and AI-supported leadership for business solutions have a positive and statistically significant impact ($p < .001$) on AI-supported appropriate training of employees. The impact is stronger for AI-supported leadership for employees. Interestingly only the strong positive statistically significant ($p < .001$) impact of AI-supported leadership for employees on AI-supported appropriate training of employees was calculated in the CB-SEM model, and there was no statistically significant impact of AI-supported leadership for business solutions on AI-supported appropriate training of employees at $p < .05$. Therefore, H3, could only be partially supported for the

Table 3. HTMT ratios of correlation

	1.	2.	3.	4.	5.
1. Organizational culture					
2. AI-supported appropriate training of employees	.138				
3. AI-supported leadership for employees	.192	.784			
4. AI-supported leadership for business solutions	.355	.402	.471		
5. Teams' effective performance	.128	.841	.736	.317	
6. Employee engagement	.050	.206	.197	.036	.221

CB-SEM method. Estimation for the best-fitting curve for nonlinear relationship in Warp PLS showed that the curve was indeed non-linear and U-shaped.

The impact of AI-supported leadership for employees on teams' effective performance was positive and statistically significant at $p < .001$. Contrary to that, the impact of AI-supported leadership for business solutions on teams' effective performance was non-significant. The same results were obtained with both estimation methods, and according to that, we only partially supported H4 (Table 4).

AI-supported appropriate training of employees' impact on teams' effective performance in both cases was strong and positive. Since it was also statistically significant at $p < .001$, we supported H5. Also, H6 was supported. Employee engagement impact on teams' effective performance was positive and statistically significant ($p < .001$) and a similar result was obtained with both methods (Table 4).

The results from both techniques are generally consistent, with similar significant levels and shapes of relationships observed. In terms of shape, we can see that most of the relationships are non-linear, with either U-shaped or S-shaped curves. A linear relationship on a graph results in a straight line, whereas a nonlinear relationship produces a curved line instead of a straight one. For example, a linear relationship is characterized by a direct correlation between an independent variable and a dependent variable, where a change in the independent variable results in a proportional change in the dependent variable. This relationship is represented on a graph as a straight line, in contrast to the curved line produced by a nonlinear relationship. Moreover, only H3b is significant (and positive relationship) only with CB-SEM (WarpPLS). Overall, these results suggest that organizational culture and AI-supported leadership play important roles in shaping AI-supported appropriate training, leadership for business solutions, and teams, which in turn influence employee engagement. The non-linear relationships observed suggest that these factors may have differential effects depending on the level or intensity of their presence or absence.

5. Discussion

The results of this study are important for managers of the companies who are looking to implement AI solution to raise productivity of their employees. Our study provides robust results, since the relationships have been tested with two different SEM methods providing linear and non-linear estimations.

Table 4. Hypotheses, and path coefficient for AMOS and Warp PLS, and the shape of relationships

	AMOS	Sig.	Warp PLS	Sig.	Shape of relationship in Warp PLS
H1: Organizational culture → AI-supported appropriate training of employees	-.051	n.s.	-.021	n.s.	Non-linear U-shaped
H2a: Organizational culture → AI-supported leadership for employees	.194	p < .001	.179	p < .001	Non-linear S-shaped
H2b: Organizational culture → AI-supported leadership for business solutions	,341	p < .001	.323	p < .001	Non-linear U-shaped
H3a: AI-supported leadership for employees → AI-supported appropriate training of employees	.778	p < .001	.569	p < .001	Non-linear S-shaped
H3b: AI-supported leadership for business solutions -> AI-supported appropriate training of employees	-.019	n.s.	.242	p < .001	Non-linear U-shaped
H4a: AI-supported leadership for employees -> Teams' effective performance	.334	p < .001	.247	p < .001	Non-linear S-shaped
H4b: AI-supported leadership for business solutions -> Teams' effective performance	-.026	n.s.	.021	n.s.	Non-linear U-shaped
H5: AI-supported appropriate training of employees -> Teams' effective performance	.524	p < .001	.589	p < .001	Non-linear S-shaped
H6: Teams' effective performance -> Employee engagement	.212	p < .001	.240	p < .001	Non-linear U-shaped

Fit indicates CB-SEM: χ^2 (142) = 561.204; p < .05; NFI = .916; IFI = .936; TLI = .922; CFI = .936; RMSEA = .082

Fit indicates PLS-SEM: APC, ARS, AARS (p < .001) AVIF=1.467; GoF = .461; SPR = .889; RSCR = .997; NLBCDR = 1.000

Table 5. R squared coefficients for endogenous latent variables

Latent variable	AMOS	Warp PLS
AI-supported leadership for employees	.038	.032
AI-supported leadership for business solutions	.116	.104
AI-supported appropriate training of employees	.579	.504
Teams' effective performance	.634	.604
Employee engagement	.045	.058

In recent years, the habits and expectations of customers and users have been changing rapidly, which is reflected in the products and services that the company offers to potential customers. Dealing with constantly changing challenges, trends, and market fluctuations can be complicated by the digitalization of business. It also enables the company to devote more time and attention to its core business while automating repetitive tasks with a lower added value. Artificial intelligence involves the entire company, and in addition to the participation of employees, it requires an active leadership role supporting artificial intelligence. Furthermore, the organizational culture that supports artificial intelligence is the softest part of the digital business transformation, however at the same time, it presents its most solid foundation and basis, which decisively affects the depth of the business part of the transformation and thus its success. Therefore, based on the results in Table 4 we confirm that organizational culture has a positive impact on both types of AI-supported leadership (H2). Table 1 shows that Slovenian companies generally have an organizational culture that supports artificial intelligence, with owners primarily agreeing that in-company training courses utilizing AI technology keep employee professional knowledge up to date. This is followed by a shared vision of the company's future and the provision of necessary training for employees to handle AI applications. Additionally, there is strong leadership support for AI initiatives and a commitment to AI projects, as well as open communication and prompt resolution of employees' problems. In today's rapidly changing and increasingly challenging business environment, digital business transformation is crucial for competitiveness, requiring a different organizational culture that positively impacts AI-supported leadership. However, according to Table 4, organizational culture did not have an impact on AI-supported employee training. Despite the potential of AI technologies to improve organizational performance, many companies face challenges in adopting them due to missing organizational and AI capability requirements (Bley et al., 2022). By customizing training and providing an ongoing training strategy for employees to continuously learn and develop their skills on the job, AI can enable companies to overcome these challenges (Baker, 2021). We recommend companies to develop values and business practices that focus primarily on its rapid response to necessary changes and strong resistance to business disruptions from the environment. In doing so, they should develop a high sensitivity and responsiveness to the customer's needs, the development of digital leadership, innovation and creation of breakthrough ideas, a positive attitude of employees towards the introduction of new (advanced) digital technologies, and a superior experience of employees with the company.

Based on results of PLS-SEM model we confirmed that AI-supported leadership for employees and AI-supported leadership for business solutions had a positive impact on AI-supported appropriate training of employees (H3). On the other hand, results of the CB-SEM model show no statistically significant impact of AI-supported leadership for business solutions on AI-supported appropriate training of employees (Table 4). Since PLS-SEM reported U shaped relationship, this is somehow understandable and an important fact. Overall, AI-supported training can be an effective way for organizations to optimize their employee training and ensure that employees have the skills and knowledge they need to serve customers and meet organizational objectives. However,

in order for AI-supported training to be successful, organizations must first understand their business objectives and the associated needs of their employees, customers, and suppliers. Only then can they begin to develop AI-supported training programs that will help their employees acquire the necessary skills.

According to Fleming (2020), business leaders are faced with new and distinct challenges due to the emergence of AI. They are required to maintain financial performance while also making substantial investments in hiring, training the workforce, and adopting new technologies that promote productivity and growth (Dabbous et al., 2022). With the ability to analyze and combine vast amounts of data, AI can detect gaps in an individual's knowledge. Using this information, learner profiles can be generated to enhance the overall learning experience and impart new skills to employees (Maity, 2019; Sohel Ather, 2022). With AI in learning and development, employees can arrange their personalized learning material, decide on their objectives, and gain information based on their learning styles and preferences (Sohel Ather, 2022). Companies find that using digital tools to train employees can increase productivity by 30%. The engagement of employees during learning with the help of digitization is 18% better than traditional methods, and at the same time, the time required for learning is reduced by 65%. To make this statistic even better, the level of memorized knowledge with the help of digital tools is up to 60% higher than the traditional method of learning (Spartaq, 2020). Baker (2021) emphasizes that 91% of employees want personal and relevant training. Artificial intelligence is the technology of the future for employee training.

Although the development in this direction is still in its infancy, it is already generating a lot of interest in the business world, as it promises a lot of potential opportunities for learning and optimizing knowledge (Mayer et al., 2023). Artificial intelligence analyzes all information about the learner's behavior to gain insight into what learning opportunities to create (Wijayati et al., 2022). In this way, it serves learning modules adapted directly to the student taking the learning course. Such a personalized learning experience dramatically raises the level of engagement and dramatically increases success. Artificial intelligence is the technology that organizations will need to start offering engaging learning experiences for learners (employees) (Baker, 2021; Dhamija & Bag, 2020; Maity, 2019). From this point of view, we recommend that the company plan which training programs and skills employees need to perform their work successfully. Also, the company should leverage AI to create personalized training and development programs, individual to the needs of each employee. The rapid development of artificial intelligence requires personnel who have appropriate skills in fields such as science, technology, engineering, and mathematics, therefore it is necessary to design appropriate training programs that are necessary for each department of the company separately since the work of the departments in the company may differ. Also, we recommend that the company provides employees with a flexible training option enabled by the use of artificial intelligence. Various artificial intelligence training tools allow employees to study from home or another location, increasing their work engagement and allowing them to coordinate their professional and private life more easily.

Based on the results we confirm that AI-supported leadership for employees has a positive impact on teams, while the impact of AI-supported leadership for business solutions on teams was non-significant (H4). This could be due to the fact that we did not consider some of the factors that influence the effectiveness of teams with the ability to anticipate business needs and design AI solutions, such as the level of knowledge and experience with AI, their communication and collaboration skills, and the amount of resources they have available to support the initiative. Therefore, further research may be needed to identify the underlying causes for the lack of impact on team effectiveness.

We confirm that AI-supported appropriate training of employees has a positive impact on appropriate teams (H5). The leader is an essential part of the team, as he directs the team members and gives instructions to achieve the set goals (Eriksson et al., 2020). For the work group to successfully complete the project, the leader must clearly present the set goals, create the conditions for their achievement, and then motivate the team members accordingly (Juliana

et al., 2021). The leader performs various tasks, while also taking care of the maintenance and creation of a systematic work process that takes place within the team (Dutta and Rangnekar, 2022b). Also, leading the team includes strategic planning of the group's development, whereby the leader tries to use all available resources that will help the team achieve the set project goals (Mayer et al., 2023). Furthermore, the potential of AI to improve teamwork effectiveness among team leaders and members has been noted (Kambur & Akar, 2022). An AI tool can provide anonymous summary results based on the team's overall performance, enabling team members to provide candid feedback and identify areas for improvement (Webber et al., 2019). According to a report by Infosys (2018), 90% of C-level executives reported measurable benefits from implementing AI technologies in their companies, and 73% of respondents agreed or strongly agreed that AI has already transformed the way they conduct business. The use of artificial intelligence technologies is very welcome in team work. For example, when teams delegate time-consuming, detail-oriented tasks to AI, team members have more time to focus on tasks that AI can't do well which increase work engagement of team members.

The results of our study also confirm that appropriate teams have a positive impact on employee engagement (H6). With the help of artificial intelligence, team members have at their disposal a large amount of more accurate information, which they need in their work and for making decisions (Meslec et al., 2020). According to Cotgreave (2018), the data analytics platform is robust, so team members must have diverse skills. The composition of teams should reflect the changing nature of skill profiles and the importance of diversity (Mikalef & Gupta, 2021). From this point of view, it is the basis of the company to provide team members with adequate training, as this has a positive effect on the successful achievement of the team's goals. Research into artificial intelligence and the increase of its use in various areas of business is growing. Due to the increasing competition and changes brought about by the business environment, companies are increasingly using artificial intelligence in various fields, such as marketing, management and team building. Artificial intelligence makes it possible to improve employees' work and develop successful teams in the workplace. In an increasingly complex and competitive business environment, companies face shorter deadlines and increased turbulence in business markets, forcing them to form more teams with complex challenges to improve teamwork. Thus, we recommend companies to build mainly on their capabilities for introducing artificial intelligence solutions, as they usually do not have enough resources and knowledge to develop new methods and algorithms. The development of human resources is a fundamental component of the company's capabilities. Only with the synergy of professionally trained employees or teams and the development process can a company successfully introduce and use artificial intelligence solutions. Learning models, the basic building blocks of artificial intelligence, require a large amount of high-quality data. Therefore, companies need to have data engineers available, whose main task is to collect, clean, store, prepare and manage data. The development of artificial intelligence models is the task of data scientists or machine learning engineers, so it is important that companies also have such experts at their disposal. In addition to the above, the company's main task is to implement artificial intelligence in all departments of the company, to ensure that the organizational culture and leadership support artificial intelligence and to ensure the work engagement of its employees.

The results of this study have several theoretical, managerial, and practical implications:

We see main theoretical implications as follows:

- (1) Robust results: The study utilized two different SEM methods, providing linear and non-linear estimations, ensuring the reliability and robustness of the findings. This contributes to the validity of the research and enhances the understanding of the relationships between organizational culture, AI-supported leadership, AI-supported training, teams, and employee engagement.

- (2) The results of this study extend the current body of knowledge about the application of AI in business environments, in particular, the role of organizational culture and AI-supported leadership in enhancing productivity and managing change.
- (3) The study shows that there's a positive impact of AI-supported leadership on employee training and team effectiveness, which aligns with the principles of learning and development theories and the concepts of leadership theory.
- (4) The research explores the nuanced relationship between AI-supported leadership for employees and business solutions, contributing to the understanding of how AI can be used differently to benefit diverse aspects of a business.
- (5) Despite the positive implications of organizational culture on AI-supported leadership, it was found that it did not impact AI-supported employee training, suggesting that more research is needed in understanding how these variables interact.
- (6) Non-Linear relationships: The findings underscore the importance of considering non-linear relationships between variables. Both U-shaped and S-shaped relationships were observed, suggesting the existence of optimal points where the effects level off or increase.

Our study provides several managerial implications:

- (1) AI implementation: Managers seeking to implement AI solutions to enhance employee productivity should pay attention to the role of organizational culture in supporting AI-supported leadership and team effectiveness. Creating a positive and supportive culture can lead to successful AI integration.
- (2) Customized training: AI-supported training programs should be customized to meet the specific needs of each employee. Personalized learning experiences enhance engagement and skill development among employees, thereby improving overall performance.
- (3) Investment in AI capability: Companies planning to adopt AI technologies must invest in the development of AI capability within their workforce. Data engineers and data scientists play a crucial role in collecting, managing, and developing AI models, enabling successful AI implementation.
- (4) To maximize team effectiveness, managers should encourage the use of AI tools for time-consuming tasks, allowing team members to focus on areas that AI cannot handle effectively.

Finally practical implications of our research are as follows:

- (1) AI-Supported training: Organizations should leverage AI in training and development programs to optimize employee learning experiences. Using AI tools for training can lead to increased productivity, engagement, and knowledge retention compared to traditional methods.
- (2) Team effectiveness: Managers should prioritize the development of effective teams, which have a positive impact on employee engagement. Emphasizing teamwork, collaboration, and providing resources to support teams can lead to better performance outcomes.
- (3) Adaptation to changing business environment: With the rapid changes brought about by digitalization and AI adoption, companies must be agile and responsive to necessary changes in their business practices. An adaptable organizational culture and digital leadership are crucial for success.
- (4) Data-driven decision making: Utilizing AI to analyze vast amounts of data can help businesses identify gaps in knowledge and decision-making processes. By leveraging AI insights, managers can make data-driven decisions to enhance productivity and growth.

6. Conclusion

Technological advances attributed to artificial intelligence are simplifying interactions between humans and machines, changing the logic of business models, and beginning to reshape human lifestyles and living standards. This inevitably raises the question of how artificial intelligence technologies generally affect businesses, users and the economy. Rapid economic development, the introduction of AI and automation are encouraging companies to transform new ways of working and their business models. This promotes the integration of AI into the business processes of the entire company. Thus, the article highlights the gap in research related to the importance of organizational culture and leadership that supports artificial intelligence and its impact on successful teamwork and the consequent increase in the work engagement of each employee. Moreover, the article highlights the results of two different statistical techniques in structural equation modeling that enabled us to assess linear and non-linear relationships between the constructs. The COVID-19 pandemic has expedited the worldwide adoption of artificial intelligence. Hence, it has become even more crucial for companies to develop the capability to implement and utilize artificial intelligence to maintain their competitiveness. It would be necessary for the state to direct development funds to develop the capacity to introduce and use artificial intelligence in companies, because, without this, Slovenian companies will not be able to compete on global markets. This also brings benefits to the state, as only a competitive economy ensures sufficient inflows into the state treasury.

This study focuses on medium-sized and large Slovenian companies. Future research could broaden this to encompass small companies and companies from various geographical locations and industries. This would provide a more comprehensive understanding of how AI impacts different types and sizes of companies across diverse contexts. The findings reveal that organizational culture does not significantly impact AI-supported appropriate training of employees. This is a unique finding that deserves further exploration. Future research could probe deeper into this aspect, investigating why this is the case and identifying other factors that might influence AI-supported training. The impact of AI-supported leadership on AI-supported appropriate training of employees was only supported by the PLS-SEM model.

Future research could further explore this relationship using additional statistical methods and considering other potential mediating or moderating variables. The results demonstrated that the impact of AI-supported leadership for business solutions on teams was non-significant. Further studies should delve into this dynamic and examine whether this remains true in other business contexts, or if certain conditions could shift this relationship. Given that employee engagement had a positive and statistically significant impact on teams, future research should investigate this relationship in greater detail. This could involve studying specific aspects of employee engagement, such as job satisfaction or organizational commitment, and their effects on team effectiveness in an AI-supportive environment.

Non-linear models in structural equation modeling offer several advantages over traditional linear models, particularly in their ability to account for non-linear relationships between variables and identify important interactions that are crucial for understanding human behavior. They can also incorporate non-linear measurement, which provides a better understanding of the complex processes that lead to human behavior. Overall, non-linear modeling structures improve the accuracy and robustness of models used for predicting and analyzing human behavior and offer the broader basis for decision making. Our study is limited to single non-linear technique, but the techniques used could be additionally supplemented by the neural networks (Sternad Zabukovšek et al., 2022), that are a type of non-linear model commonly used for modeling human perception, and that proved useful in the past research.

This research was limited to five constructs: organizational culture, AI-supported leadership, AI-supported appropriate training of employees, teams and employee engagement. Therefore, we propose upgrading the conceptual model with new constructs in connection with artificial intelligence for future research. Additionally, we recommend analyzing the differences in constructs between different industries in Slovenian companies.

Also, the usage of a single questionnaire to measure both the dependent and independent variables carries the risk of common method variance, which can significantly impact research findings (Podsakoff et al., 2003). This risk arises since individuals may develop illusory correlations regarding consistency motifs, which may influence their implicit theories or job schema and, in turn, affect their attention towards and encoding of respondents behaviors, as well as their later recall (Smith et al., 1989), and since the data was collected in the same location and at the same time, systematic covariation cannot be ignored (Podsakoff et al., 2003).

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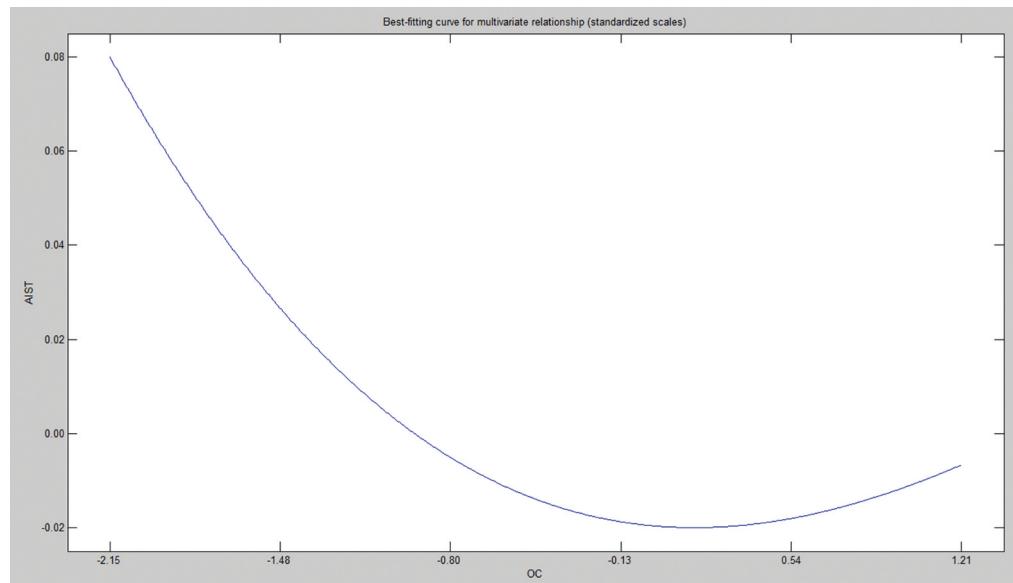
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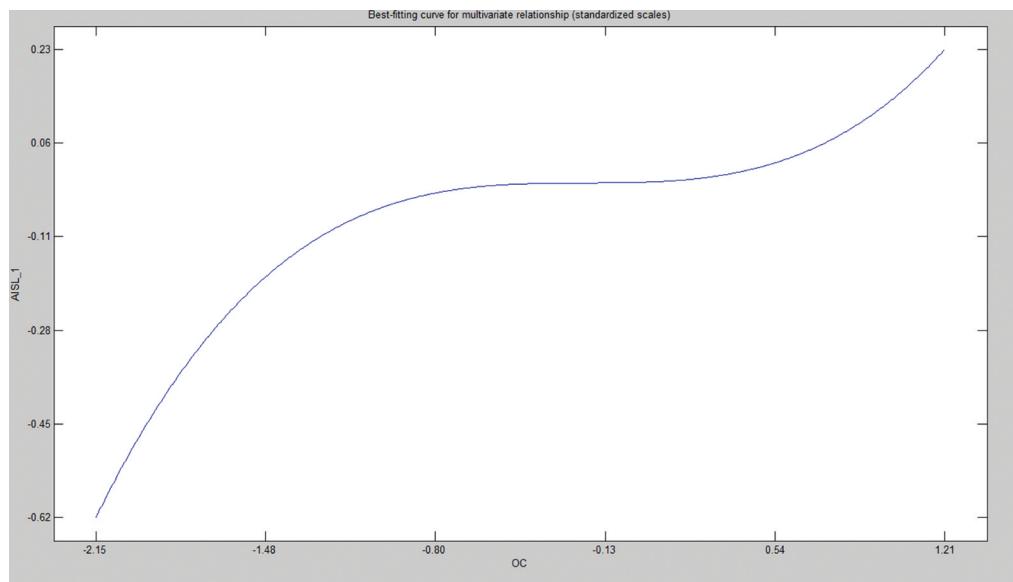
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Appendix 1: Shapes of relationship as estimated in PLS Warp

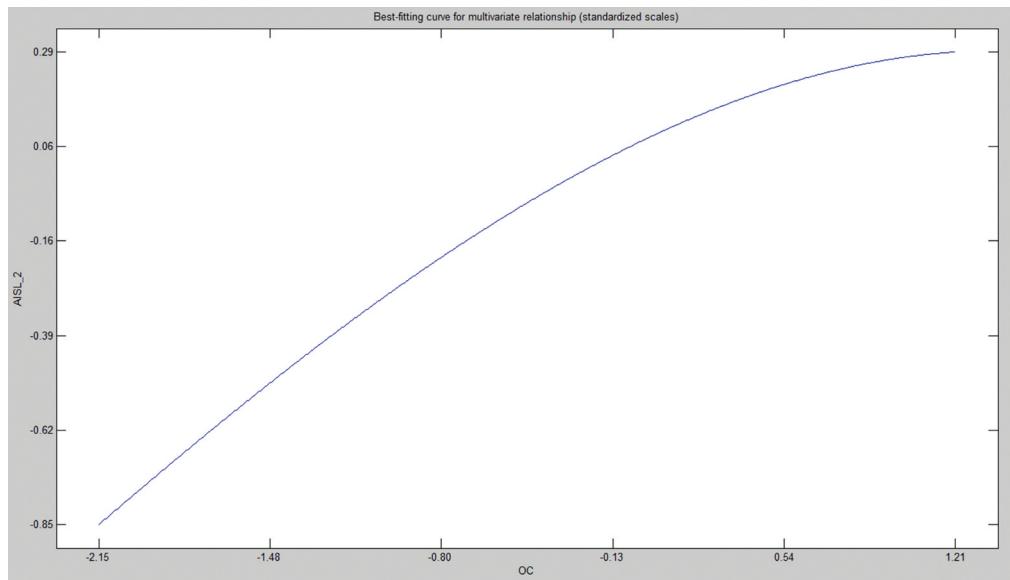
H1: Organizational culture (OC)→ AI-supported appropriate training of employees (AIST)



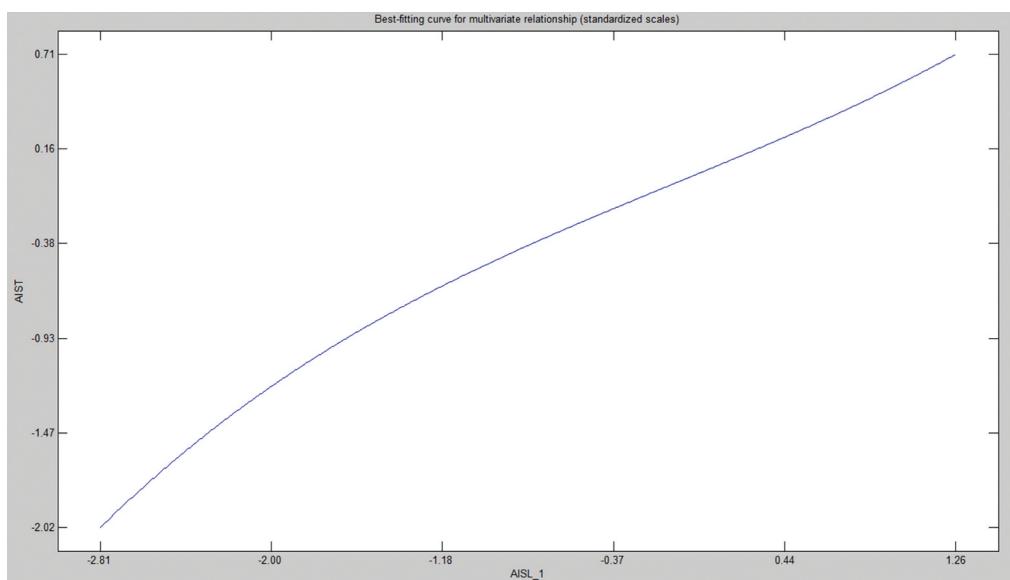
H2a: Organizational culture (OC)→ AI-supported leadership for employees (AISL_1)



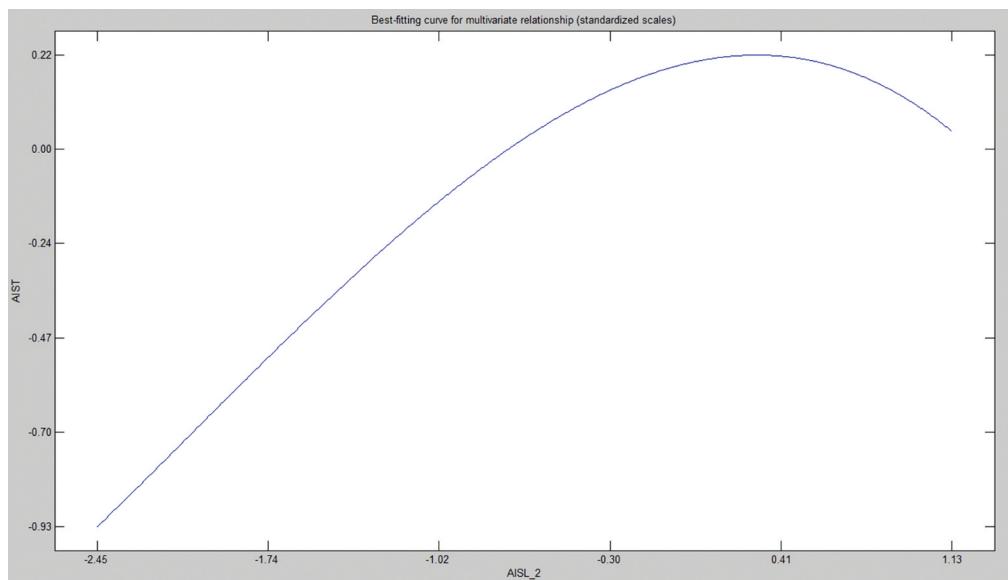
H2b: Organizational culture (OC)-> AI-supported leadership for business solutions (AISL_2)



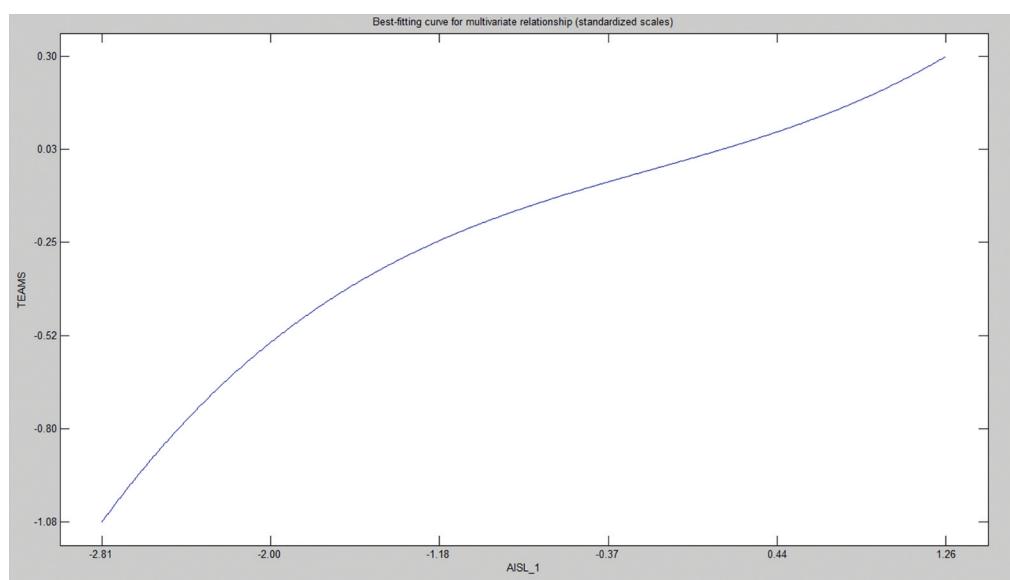
H3a: AI-supported leadership for employees (AISL_1)-> AI-supported appropriate training of employees (AIST)



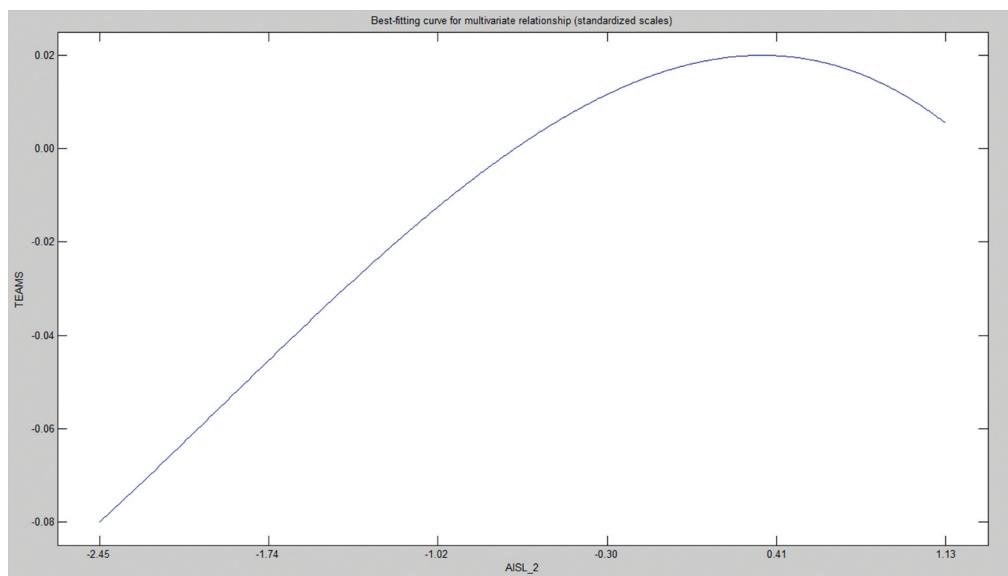
H3b: AI-supported leadership for business solutions (AISL_2) -> AI-supported appropriate training of employees (AIST)



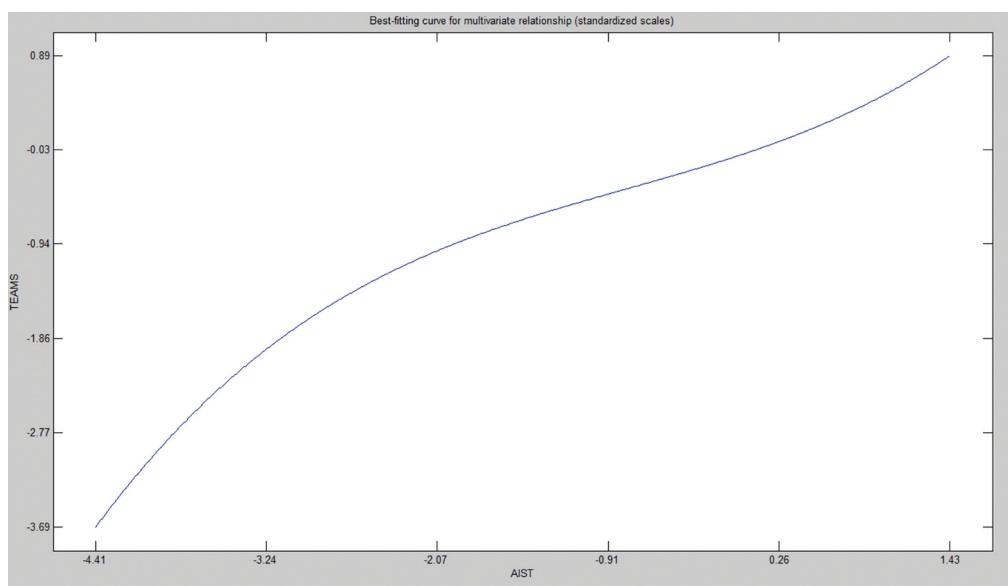
H4a: AI-supported leadership for employees (AISL_1)-> Teams (TEAMS)



**H4b: AI-supported leadership
for business solutions (AISL_2)
-> Teams (TEAMS)**



**H5: AI-supported appropriate
training of employees (AIST) ->
Teams (TEAMS)**



**H6: Teams (TEAMS) ->
Employee engagement
(ENGAGE)**

