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FOSTERING EMPLOYEE EFFECTIVENESS THROUGH INTELLIGENT MANAGEMENT – THEORETICAL FRAMEWORK

"I think what makes AI different from other technologies is that it's going to bring humans and machines closer together. AI is sometimes incorrectly framed as machines replacing humans. It's not about machines replacing humans, but machines augmenting humans."
Robin Bordoli, Authentic Ventures

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ABSTRACT

Purpose: *This study explores the relationship between employees' effectiveness (EE) and intelligent management (InMan), focusing on how modern technologies, particularly AI, influence workplace performance. It examines whether InMan can enhance EE, and identifies key factors shaping workplace design in this context.*

Need for the Study: *The increasing integration of AI and InMan systems in organizations raises questions about their impact on employees' effectiveness. While existing research highlights AI's benefits in various business areas, direct studies addressing its influence on EE are missing. This study fills this gap by analyzing how InMan can support or challenge employees' ability to do their tasks efficiently while maintaining work comfort.*

Methodology: *A critical literature review was conducted using the snowball method to select and analyze specialized academic sources. Additionally, international and national reports on EE and InMan were reviewed to identify relevant trends, challenges, and opportunities. The analysis was structured within a holistic framework, considering four employee activity spheres: physical, mental, emotional, and spiritual.*

Findings: *The study finds that InMan has the potential to enhance EE by optimizing decision-making, resource allocation, and process efficiency. However, its effectiveness depends on integrating AI with human competencies to balance high productivity and employee well-being. Key EE-related factors must be considered in workplace design using InMan.*

Practical Implications: *Organizations should adopt a holistic approach when implementing InMan, ensuring technological advancements align with employees' competencies and well-being. Practical recommendations include designing AI-driven workplaces, fostering productivity without compromising employee comfort. The findings highlight the importance of combining human expertise with AI to achieve sustainable organizational performance.*

Keywords: employee effectiveness, employee, effectiveness, intelligent management, holistic theory, individual capabilities, artificial intelligence

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1. INTRODUCTION

The use of modern technologies in the workplace is increasing yearly (Morawski, Jagoda & Jędrzejczyk, 2024). Forecasts indicate that AI will become increasingly important for employees, taking over their duties (Schneider, 2021) and not just supporting management processes (intelligent management – InMan). These modern technologies will undoubtedly bring many benefits and problems for employers. From improving the organization's performance in individual areas of activity, e.g., in management (Odrekhivskyi, Pshyk-Kovalska, Zhezhukha & Ivanochko, 2022), marketing (Bharathi, Manjunath, Hemantha & Praveen, 2024; Davenport, Guha, Grewal & Bressgott, 2019), or supporting HR processes (Balsmeier, 2019; Gîrlovan, Horobeț, Boțoroga, Belaşcu & Lucian, 2024; Henkel, Bromuri, Iren & Urovi, 2020; Kaplan & Haenlein, 2019) to individual workplace customization (Arslan, Cooper, Khan, Golgeci & Ali 2022; Li, Li & Chan, 2019; Zirar, Ali, & Islam, 2023) and intelligent programs to control work safety (Kaur, Gabrijelčič & Klobučar, 2023; Selenko, Bankins, Shoss, Warburton & Restubog, 2022). It is a driving force for developing people, organizations, and economies (OECD, 2024), evolving rapidly (Dignum, 2017). However, will it increase employees' effectiveness (EE)? There are currently hardly any direct scientific publications presenting research results on this topic. Some information can be found in reports from international and national organizations and consulting firms presenting the latest information on employees' effectiveness (EE) and intelligent management (InMan) in organizations.

EE, or the ability of employees to effectively achieve goals and tasks, is analyzed here according to a holistic approach (Pluta & Rudawska, 2016), in which each employee has a set of unique competencies. They testify to their effectiveness, which, in turn, can be characterized by considering four spheres of activity (physical, mental, emotional, and spiritual). We believe they are all important in combining EE (manifested in expected and high productivity and effectiveness at work) with work comfort (good working atmosphere, work without overload and overwork, work without stress). InMan, on the other hand, is understood as the use of advanced technologies, including AI, to make decisions, optimize processes and improve the efficiency of organizations. InMan integrates information technology, analytical technology, and automation to manage resources and processes in organizations more effectively.

Therefore, the study aims to present the relationship between EE and InMan. The following research questions were posed:

(RQ1) How can EE be fostered through InMan?

(RQ2) Which EE-related factors form the basis for workplace design using InMan?

The first part of the study is a theoretical introduction to the issues discussed. It uses a critical analysis of specialized literature selected thematically by the snowball method. On this basis, criteria were developed for selecting and analyzing the content of international and Polish reports on the relationship between EE and InMen. A summary of the analyzed reports is then presented. This description is the basis for the practical and theoretical recommendations considering a holistic approach to understanding EE (Pluta, 2018; Pluta & Rudawska, 2016; Schwartz, 2020).

2. FROM ARTIFICIAL INTELLIGENCE TO INTELLIGENT MANAGEMENT

Artificial intelligence (AI) is a broad field of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence' (Sarker, 2022, p. 157). However, it is not a phenomenon, but rather "AI as the frontier of computational advancements that references human intelligence in addressing ever more complex decision-making problems" (Berente, Gu, Recker, Santanam, 2021, p. 1434). The value of this way of thinking is that AI is not limited to a thing, a set of technologies, a program, or an algorithm but is understood as a concept that evolves from phenomena (Berente et al., 2021) present in the workplace. This allows AI to be used to optimize work (Selenko et al., 2022; Zirar et al., 2023; Kaur et al., 2023) but also to analyze more precisely the concerns and risks associated with the increasing use of AI by employees (WEF, 2025). AI is a key element transforming the professional activities of employees – it simplifies and eliminates some tasks (routine, monotonous), shortens the time of their implementation (Zirar et al., 2023), improves decision-making processes by providing access to information (fast, pre-analysed), as well as improving working conditions and increasing comfort (Kajtaniak, Socha & Wróblewski, 2024; Korgul, Witczak & Święcicki, 2024).

InMan refers to integrating advanced technologies and methodologies to enhance decision-making and operational efficiency across various domains. This concept encompasses using artificial intelligence, data analytics, and system modeling to optimize processes and improve outcomes in business and other sectors. So, it can be defined as applying artificial intelligence, machine learning, and data-driven insights to manage complex systems, processes, and resources effectively. It involves integrating human expertise with automated systems to achieve superior outcomes. The core principles of InMan include (Odrekhivskyi et al., 2022):

- Data-Driven Decision-Making: Leveraging real-time data and analytics to inform decisions, ensuring accuracy and timeliness.
- Automation and AI Integration: Utilising AI and machine learning algorithms to automate routine tasks, predict trends, and optimize operations.
- Human-Machine Collaboration: Combining human intelligence with machine capabilities to enhance problem-solving and innovation.
- Predictive and Preventive Capabilities: Anticipating potential issues and proactively mitigating risks.

In addition to the above, the impact of InMan in the workplace has numerous adverse effects that are only just emerging and are still being researched. Most researchers point to work overload (Selenko et al., 2022), resulting in professional burnout (Riegel & VanHusen, 2024) or technostress (La Torre, De Leonardis & Chiappetta, 2020). Current employees perform their professional duties under constant pressure – of tasks and time (Pluta, 2018). On the one hand, this results from the cult of work, which obliges them to work long hours (Benson, 2022; Welsh, 2013). It is socially accepted and additionally rewarded, one of the most pressing problems facing entrepreneurs (Schulte, 2024). Employees feel increasingly overworked, frustrated, and burnt out (La Torre et al., 2020; Mental Health UK, 2025, p. 5; Riegel & VanHusen, 2024). It leads to dissatisfaction with work and life. They feel guilty about neglecting their professional and non-professional duties. It hurts their health, leading to a decline in their commitment to work, encourages them to make mistakes and is a reason for them to leave their job (Schwartz, 2007). As a result, EE decreases, and employee frustration and burnout increase (e.g., Chan, Clarke & Cebrian, 2024; Mental Health UK, 2025; Mindgram, 2021).

3. HOLISTIC THEORY AND EMPLOYEE EFFECTIVENESS

The human capital resources (HCR) theory (Ray, Essman, Nyberg, Ployhart & Hale, 2023) indicates that a person has individual capabilities (knowledge, skills, abilities, and other characteristics – KSAOs) (Ployhart & Moliterno, 2011). They determine a person's effectiveness at work, engagement (Bugaj & Chałupczak, 2020; Henkel et al., 2020), and creativity. They can be treated as human capital, i.e., 'individual or unit-level capacities based on individual KSAOs that are accessible for unit-relevant purposes' (Ployhart, Nyberg, Reilly & Maltarich, 2014). This approach allows for a better look at employees and their capabilities. However, such a broad understanding of individual effectiveness does not fully allow for identifying factors influencing performance in the process of current changes at work. Of course, employee competencies (knowledge, skills, attitude) are important but insufficient to answer the question of where individual effectiveness arises.

It is also necessary to consider resilience factors, which are responsible for the ability to perform various professional activities that translate into the efficiency of employees and the organization's results (Schwartz, 2020). The basis for this are theories based on energy perspectives (Quinn, Spreitzer & Lama, 2012), which allow a more detailed look at the factors shaping individual effectiveness as parts of the human body, including its physicality – that is, the ability to work that requires the use of force, but also its activation sphere. Three aspects can be distinguished within the activation part: mental (Lykken, 2005; Mayer & Gavin, 2005) – allowing one to think about the problem and look for a solution; emotional (Collins, 2004) – providing the initiative to act, enthusiasm and a sense of trust, as well as spiritual (Ashar & Lane-Maher, 2004; Fisher, 2011) – guiding a person and referring to the essence of their existence and higher moral qualities. In turn, it allows us to look at the individual effectiveness of an employee according to the holistic paradigm (Covey, 2012; Covey, 2005). It is a four-dimensional being composed of the following aspects: physical (body), mental (mind), emotional (heart), and spiritual (principles, values). A deficit in just one of these areas can already threaten EE and adversely

affect the activities undertaken by the individual (Pluta, 2018; Pluta, Rudawska, 2016). The characteristics of individual effectiveness understood in this way are shown in the table 1.

Table 1. Holistic understanding of shaping individual effectiveness

Category of analysis	Characteristics	Examples
Physical	Influences human activity or lack thereof; its level depends on the health, resilience, and resistance of the human body, its physical condition	Physical condition Health Physical resistance
Mental	Determines the ability to focus on a task and perception, as well as the ability to solve problems and learn and be creative	Concentration Memory and learning Problem-solving Creativity
Emotional	Reflects the strength of emotions and their sign (positive or negative), which is the basis for establishing and maintaining relationships with others, motivation, and well-being	Attitude and mobilization Well-being Satisfaction Self-control
Spiritual	Being a moral compass of a person – a set of ingrained values that shape self-awareness and the inner sense of purpose in life	Self-esteem Sense of self-efficacy Meaning of life Ethical standards, values

Source: own study based on (Pluta, 2018, p. 111; Pluta, Rudawska, 2016, p. 300).

A holistic approach to individual effectiveness provides a deeper understanding of how the use of InMan in an organization impacts employees' work. It is important not only to identify and reinforce positive effects but also to recognize and mitigate negative consequences. Furthermore, organizations should take proactive steps to slow down the decline of individual capabilities, which act as a resilience factor but are inherently limited and require replenishment (Sayre, Chi, & Grandey, 2025). This process involves not only buffering actions to minimize strain but also renewal initiatives to restore the capabilities depleted in the course of work. The development of EE will also be enhanced by the alignment of employee values with organizational values (Siwińska-Olszówka & Bugaj, 2024). This relationship positively impacts every aspect of the employee's performance.

To achieve this balance, organizations should implement HR practices that promote the regeneration of capabilities and foster a work environment that supports employee well-being (Petrou, Demerouti &, Häfner, 2015; Salanova, Bakker & Llorens, 2006). At the same time, employees can take individual initiatives to recover their energy on a daily basis, ensuring sustained effectiveness in the long run (Kujanpää & Olafsen, 2024). By integrating both organizational and individual efforts, EE will gradually improve, contributing to a healthier and more productive work environment.

4. CRITERIA FOR ANALYZING THE RELATIONSHIP BETWEEN EMPLOYEES' EFFECTIVENESS AND INTELLIGENT MANAGEMENT

A practical problem concerning the relationship between EE and InMan inspired our research. Employers in social media signaled it, as did expert opinions, reports and industry conferences (grey literature). Therefore, the research work plan consisted of 4 stages. In the first stage, a pilot literature review was carried out on 12 February 2025 in the SCOPUS database using the keywords 'employee's effectiveness' and 'intelligent management,' resulting in 5 loosely related texts related to the scope of the search. Then, the search was expanded to include 'artificial intelligence' OR AI, and the number increased to 9 texts. After analyzing the abstracts and content of the searches, it was concluded that the data source should be changed, and in the second stage of the research, reports from international and Polish organizations and consulting firms were used, the content of which concerned EE and the use of AI or InMan in the workplace. The exclusion criterion was also the year of publication, with a cut-off date after COVID-19. These activities were conducted on 26.02.2025 (Table 2).

Table 2. Reports analyzed

No.	Report name	Prepared by
1.	Future of Jobs Report 2025, January 2025	World Economic Forum (WEF)
2.	Using AI in The Workplace Opportunities, Risks And Policy Responses, OECD Artificial Intelligence Papers, March 2024	International organization with worldwide reach – OECD.
3.	The impact of AI on the workplace: Main findings from the OECD AI surveys of employers and workers', OECD Social, Employment and Migration Working Papers, March 2023	International organization with worldwide reach – OECD.
4.	AI at work. Why there is more to it than task automation, 2024	International organization focusing on EU issues – CEPS Explainers
5.	Artificial Intelligence at Work: The Shifting Landscape of Future Skills and the Future of Work, 2024	Diversity Institute and Environics Institute for Survey Research commissioned by the Government of Canada
6.	Work Trend Index Annual Report, AI at Work Is Here. Now Comes the Hard Part, May 2024	Edelman Data & Intelligence on behalf of Microsoft and LinkedIn
7.	Raport płacowy (Payroll Report), 2025	Hays Poland
8	Rynek pracy, edukacja, kompetencje. Aktualne trendy i wyniki badań (Job market, education, competences. Current trends and research results), January 2025	Polska Agencja Rozwoju Przedsiębiorczości (The Polish Agency for Enterprise Development, PARP)
9	Workmonitor: nowy standard miejsca pracy (Workmonitor: The New Standard for the Workplace), 2025	Randstad
10.	AI na polskim rynku pracy (AI on the Polish labor market), Warsaw 2024	Polish Economic Institute
11.	Rynek pracy a rewolucja cyfrowa. Wpływ AI i nowych technologii (The labour market and the digital revolution. The impact of AI and new technologies), June 2024	Polityka Insight
12.	Gotowi na sztuczną inteligencję. Oczekiwania polskich konsumentów i firm (Ready for artificial intelligence. Expectations of Polish consumers and companies), October 2024	PwC Polska (Poland)
13.	Zastosowanie sztucznej inteligencji w procesie pracy (Application of artificial intelligence in the work process), December 2024	ProVision Solutions Jakub Wróblewski commissioned by the Regional Labour Market Observatory in Łódź
14.	HR TECH changer, 2023	Polish HR Forum

Source: own elaboration.

In the third stage of the research, criteria for analyzing reports were identified after a critical review of the scientific literature concerning EE, AI, and InMan separately. They are presented in Table 3. It includes main and additional criteria, each briefly characterized. In the fourth stage of the research, the analyzed reports were summarized, and practical and theoretical recommendations were prepared.

Table 3. Criteria used to analyze reports on InMan in the workplace

No.	Criteria		Characteristics
	Main	**Additional**	
1.	InMan possibilities and scope of application task	Automation tasks	Elimination of human intervention in time-consuming or monotonous
		Process automation	Use of software and technology to carry out business processes and functions
		Areas of application of InMan in the organization	Identification of areas in the organization where AI can be applied
		Impact of AI on increasing efficiency in the workplace	Assessment of the operational efficiency of the organization, work teams, or employees
		Level of digitization of the organization	Assessment of the level of use of various digital technologies (including AI) in the organization
2.	Readiness to implement InMan in the organization	Barriers to the implementation of AI in the workplace	Identification of factors hindering the use of InMan in the organization
		Use of experts when implementing InMan in the organization	Evaluation of the solutions adopted in the process of implementing AI in the workplace
3.	Impact of InMan on employment and the labor market	Availability of jobs in organizations using AI	Evaluation of whether AI creates or eliminates jobs
		The type of impact of AI on employment in the organization	Estimating the support or replacement of a given activity leading to the performance of tasks or the profession itself by AI
		The impact of AI on the professional structure of employees	Assessing which professions AI eliminates and which it creates
		Acquiring new competencies (knowledge and skills)	Examining competence needs and their changes
4.	InMan's impact on the business aspects of an organization	Impact on the organization's efficiency and productivity	The possibility of financial savings, increased revenue, and reduced costs through the implementation of InMan in the workplace
		Achieving a competitive advantage	The value that distinguishes an organization from its competitors and indicates its position in the market
5.	Impact of InMan on work and	Economic sectors using AI and InMan	Identification of economic sectors using AI and InMan
		Change in the nature of work and tasks	Performed transformations in activities and tasks performed at the workplace
		Identification of work forms	Indication of the form of work used: stationary, remote, hybrid

	working conditions	Reduction of working hours	Change in the timing of activities and tasks
		Changes in relationships between employees	Understanding of each other's needs and possibilities in a workplace using InMan
		Fears about AI in the workplace	Fear of being replaced by AI in the workplace
		Exposure to InMan in the workplace	Assessment of the impact of InMan depending on demographic characteristics, education, place of residence, etc.
6.	Social, ethical, and legal issues of using InMan	Ethics of AI use in the workplace	Compliance with existing ethical and moral standards in InMan-using workplaces
		Legal compliance	Assessment of the legality of AI implementation and use in the workplace, reliability, and transparency of InMan solutions

Source: own elaboration.

The criteria presented in Table 2 can be used to develop a research model and to prepare a tool to examine the relationship between EE and InMan. They are described at a high level of generality and require further elaboration in analyzing a specific case of an employer and its employees. In addition, they draw attention to the complexity of this relationship, which can be different in each organization and, therefore, requires several research tools (mixed methods) to complement the information obtained.

5. CONCLUSIONS FROM THE ANALYZED REPORTS

All reports selected for analysis focus on issues identified as analysis criteria, although to varying degrees. Among the main conclusions from international reports published after the COVID-19 pandemic are:

- visible progress in the use of AI in the workplace:
  - the most popular application of AI is the automation of work processes (Korgul et.al., 2024; HR TECH changer, 2023; Lane, Williams & Broecke, 2023; PwC, 2024),
  - employers are increasingly using various applications to support the cognitive abilities of employees (Cukier, Saiphoo & Parkin, 2024) and to facilitate the execution of tasks and improve work coordination (Nurski, 2024),
  - the possibility of using AI in the workplace for various tasks is emphasized - both routine ones and the ones enabling innovation (PwC, 2024; Work Trend Index Annual Report, 2024),
  - the application of AI to enhance the employees' professional roles (Randstad, 2025),
  - the impact of AI on every profession and sector of the economy is indicated (OECD, 2024), and its key role in the organization's operations until 2030 is emphasized (Ivanova, Budzewski & Sienkiewicz, 2025; WEF, 2025);
- employers' readiness to implement InMan in organizations:
  - the possibility of using AI in the workplace (WEF, 2025) and the enthusiasm of employees is emphasized (Work Trend Index Annual Report, 2024), but also the concerns of organizations, especially Polish ones (Cichy, Czapluk, Kiebzak & Kieroński, 2024; Kajtaniak et al., 2024; PwC, 2024),
  - the obstacles and barriers to the implementation of InMan are indicated, e.g., the high costs of this technology (Lane et al., 2023; Kajtaniak et al., 2024), lack of appropriate employee skills, and discrimination against them (Cukier et al., 2024; Hays, 2025; OECD, 2024; PwC, 2024), or insufficient government regulations and compliance (Lane et al., 2023; PwC, 2024) and fears of job losses (Hays, 2025; Ivanova et al., 2025; Korgul et al., 2024; Nurski, 2024; OECD, 2024; PwC, 2024; WEF, 2025);
- InMan's multi-faceted impact on the labor market and employment:

  - an improvement, but also a deterioration of the situation of employees in the labor market is indicated (Kajtaniak et al., 2024), which is the result of the perceived elimination of jobs (Cichy et al., 2024; Hays, 2025; Lane et al., 2023;) and the professions that carry it out (Kajtaniak et al., 2024; Korgul et al., 2024;),
  - a change in the nature of work is indicated (Kajtaniak et al., 2024; Nurski, 2024), which affects the change in the competence needs of specialists and the skills of employees (Hays, 2025; Ivanova et al., 2025; Korgul et al., 2024; Lane et al., 2023), which emphasizes the importance of training and consultation with employees (OECD, 2024), initiating self-learning by employees in the use of InMan (Cukier et al., 2024);
- strong relationship of InMan with the organization's areas of activity:
  - the potential of AI for business transformation and the possibility of achieving productivity growth in all functions of the organization is indicated (Cichy et al., 2024; Work Trend Index Annual Report, 2024) especially in finance, engineering and manufacturing, marketing and sales, life sciences, as well as telecommunications (Hays, 2025),
  - it is emphasized that new technologies, including InMan, can support new ways of achieving organizational goals that increase productivity (Korgul et al., 2024; Lane et al., 2023; Nurski, 2024; OECD, 2024) and creativity (Hays, 2025; Ivanova et al., 2025),
  - it is mentioned that unequal access to the use of InMan in organizations contributes to their more significant competitive advantage (HR TECH changer, 2023; Kajtaniak et al., 2024; Korgul et al., 2024; OECD, 2024; PwC, 2024; Work Trend Index Annual Report, 2024);
- the significant connection between InMan and work and working conditions:
  - one of the OECD reports (Lane et al., 2023) examines these issues in detail, analyzing the perception of the impact of AI in the workplace from the point of view of employers and employees,
  - a change in the nature of work is perceived (reorganization of tasks, automation of tasks, creation of new tasks), which changes the competence needs of employees (Cichy et al., 2024; Hays, 2025; Kajtaniak et al., 2024), but also leads to an acceleration of the pace of work (Lane et al., 2023), which forces the redesign of work organization (Korgul et al., 2024; Nurski, 2024) and affects the productivity and creativity of employees (Cukier et al., 2024; Hays, 2025; Ivanova et al., 2025; Work Trend Index Annual Report, 2024), as well as relationships in the workplace (Lane et al., 2023),
  - attention is drawn to AI's benefits in the workplace but also to the risk of losing autonomy, agency, and even dignity and depriving employees of rest (OECD, 2024);
- linking the social, ethical, and legal areas of InMan application in organizations:
  - it is pointed out that trust and inclusiveness in the organization must be built for AI to contribute to the positive and sustainable activities of the organization, as well as to the innovation, productivity, and well-being of employees (Lane et al., 2023; OECD, 2024; PwC, 2024),
  - attention is drawn to algorithmic human resource management (AHRM), which can lead to discrimination against employees in an organization if there is no adequate control over the algorithms (Cukier et al., 2024; Korgul et al., 2024) and it also raises concerns about legal and ethical consequences (Hays, 2025),
  - the need for responsible implementation of AI in the workplace is also mentioned. One possibility is the renegotiation of contracts between employers and employees in connection with the introduction of AI (Work Trend Index Annual Report, 2024), as well as attention to data security and ethics (Cichy et al., 2024; Korgul et al., 2024).

The most in-depth description of the use of InMan in an organization is contained in an OECD report (2024). For example, employers use the application in the recruitment process (searching CVs) to build and maintain customer interactions, monitor work (assign tasks and control their execution), or plan and provide employee training. On the other hand, employees are using AI in more and more tasks and are realizing that this is changing their work (depending on complexity, diversity, and speed) and forcing them to constantly update and improve their knowledge and skills. It is confirmed by another OECD report (Lane et al., 2023), which shows that managers and employees are positive about InMan in the

workplace, although they also have concerns. As a result, they emphasize the need for constant monitoring of the effects and use of InMan.

6. RESEARCH FINDINGS AND RECOMMENDATIONS

Table 4 summaries the consequences of implementing InMan in organizations, which positively and negatively affect EE. However, InMan itself is neither good nor bad. Depending on how it is used, it can maximize the positive effects of employee support and minimize the negative ones. It can also become a remedy for the omnipresent burnout in the workplace. For this to be possible, it is necessary to consider a broad EE perspective.

Table 4. Positive and negative effects of InMann for holistically understood shaping of individual effectiveness

Potential category	Positive effects	Negative effects
Physical	• can lead to a reduction in the physical strain on employees through the automation of repetitive tasks • better organization of work and information flow can reduce physical fatigue associated with chaos and lack of clarity • it can have a positive effect on physical health by balancing work and life, e.g., through the possibility of remote working	• replacing human labor can lead to reduced physical activity and poorer fitness and health • working with modern technologies is conducive to health problems (eyes, spine, etc.) • remote working makes it difficult to interact with others, which can reinforce feelings of isolation
Mental	• automation of routine tasks allows to focus on analytical and problem-solving activities, as well as tasks requiring creativity • supports data-driven decision-making through access to advanced analytical tools • better work organization facilitates concentration and cognitive activities	• ai in the workplace can weaken the ability to think critically and solve problems, as well as creativity • it causes information overload, which makes it difficult to make decisions
Emotional	• clear work rules influence the work climate and relationships between employees • stress is reduced, which has a positive effect on emotions • better time management can lead to a reduction in burnout	• competing with ai can cause anxiety, frustration, and, as a result, stress and burnout • using ai at work can generate conflicts within the team
Spiritual	• it creates opportunities for development, which affects the sense of meaning in life and work • it allows time for social activities (volunteering), which supports a sense of fulfillment and self-realization	• ai in the workplace can be a source of existential crisis • it lowers morale and makes it easier to respect pathological behavior

Source: own elaboration.

The EE described it can indeed be fostered, thanks to InMan, through a holistic approach to each employee, i.e., from a physical, mental, emotional, and spiritual perspective. It promotes a better match between the workplace and the employee. Awareness of this approach is important among organizational decision-makers and employees. It increases the chance of preparing ways to implement

InMan tailored to the organization's current needs and supports building a culture of productivity and well-being (Schulte, 2024). However, this requires comprehensive management measures in each organization (especially when designing workplaces), divided into four categories:

- physical health protection:
  - ensuring ergonomic workstations and opportunities to rest during tasks,
  - o promoting a healthy lifestyle in the organization (healthy eating, physical activity, etc.),
  - facilitating access to healthcare (access to doctors but also preventive programs);
- mental health protection:
  - clear definition of tasks and roles of employees,
  - investment in the development of employee competencies enabling the use of AI in the workplace,
  - psychological support and training in stress management;
- emotional development of employees:
  - promotion of harmony between employees' professional and private lives,
  - promoting a sense of community in the organization, which integrates employees and improves their relationships, but also has a positive impact on their work,
  - training on building relationships with others, but also on relaxation;
- spiritual support for employees:
  - identifying the goals and purpose of AI-based work,
  - caring about the values of employees and taking them into account when determining the values of the organization,
  - funding training and workshops that develop employees outside of work.

Of course, implementing such a broad program of measures to support employees in the workplace requires constant monitoring and the adaptation of specific solutions to current needs. Therefore, it is necessary to collect feedback from employees and, on this basis, make decisions to improve this support.

7. CONCLUSIONS

The novelty of the presented approach is the combination of EE and InMan. In theory, the presented impact criteria, derived from scientific and specialist literature analysis, should be verified in empirical research on large groups of employees and specific examples of organizations using InMan. Studies using surveys and/or interviews could provide tangible evidence of how InMan impacts EE in specific organizational settings. Paying attention to industry-specific applications of AI in the workplace and conducting sectoral analyses would help identify similarities and differences in the implementation of modern technologies, as well as their concrete effects.

It is particularly important to examine how AI adoption and InMan implementation influence highly automated production environments compared to creative industries or sectors focused on healthcare and education. Understanding these nuances will enable the development of more targeted practical recommendations on the effective integration of modern technologies.

It will be a source of good practices for employers considering the comprehensive use of InMan systems to improve processes and resources. At the same time, it is worth assessing whether and to what extent the proposed recommendations improve EE and prevent or limit the phenomenon of burnout visible in organizations, as reported in recent reports (Chan et al., 2024; Mental Health UK, 2025 Mindgram, 2021). It is worth focusing on the current and long-term effects of such activities. Both require a different research approach. The long-term effects of InMan employee collaboration, in particular, can affect not only the increase or decrease in an organization's productivity, risk management, and organizational resilience but also the change in the organization's competitive position using InMan. From the employee's perspective, it is essential to examine how to reduce resistance to the implementation of and collaboration with InMan while also preventing the loss of individual capabilities. Ultimately, this raises the key question: how can organizations better support employees during implementation to ensure that workplace changes do not negatively impact them, and, as a result, do not lead to a decline in their performance (EE).

Although the presented discussion applies a holistic framework to assess EE–including its physical, mental, emotional, and spiritual dimensions–it does not provide specific information on the quantitative measurement of how these factors interact with InMan. The proposed relationship remains purely conceptual and requires empirical research as well as statistical analysis to validate its assumptions. Such studies would strengthen the theoretical findings and offer practical recommendations that better align with the current needs of organizations.

Future research should focus on developing a model for employee collaboration with AI in the workplace. It is crucial to acknowledge that AI has the potential for continuous operation and process optimization, whereas humans have inherent physical and cognitive limitations. To ensure long-term employee effectiveness, organizations must address the working conditions and human-AI collaboration dynamics. Implementing InMan in organizations should account for human needs and proactively address potential long-term consequences.

Therefore, studies using a holistic framework to assess EE in AI-driven workplaces should be long-term. This would allow for a deeper understanding of how AI impacts the workforce and whether the benefits of AI implementation outweigh its potential drawbacks over time. Naturally, these considerations should incorporate not only social perspectives but also ethical and legal dimensions to ensure responsible and sustainable AI integration.

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