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AI-POWERED DIGITAL ASSISTANTS AS TOOLS FOR MANAGING WORK-LIFE BALANCE

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Purpose: The aim of the article is to identify the potential of AI-based digital assistants as tools supporting the management of work–life balance. The paper attempts to identify the benefits and limitations arising from the use of such solutions.
Design/methodology/approach: The article is based on an analysis of the literature in the fields of artificial intelligence, time management, and work–life balance.
Findings: The findings indicate that AI-based digital assistants can support time management and enhance productivity, thereby contributing to the improvement of work–life balance. At the same time, their effectiveness depends on users' awareness and competencies.
Research limitations/implications: The contribution of the article lies in structuring these issues and identifying directions for further research, particularly of an empirical nature, including the analysis of specific tools, criteria for their evaluation, and the long-term effects of their application. Future research should also take into account the organizational context of implementation and individual user differences, which would enable a more comprehensive assessment of the potential and limitations of the analyzed solutions.
Practical implications: The findings may support organizations in implementing AI-based digital assistants in the domain of work–life balance, enhancing work efficiency and employee well-being, which may, in turn, translate into improved economic performance and organizational competitiveness.
Social implications: The use of AI-based digital assistants may contribute to improving quality of life, reducing stress, and enhancing time management, while simultaneously giving rise to challenges related to excessive digitalization and dependence on technology.
Originality/value: The article integrates technological and socio-economic perspectives, presenting AI-based digital assistants as tools supporting work–life balance, which constitutes a relatively new and dynamically developing area of research.
Keywords: artificial intelligence, digital assistants, work–life balance, productivity, time management.
Category of the paper: General review, literature review.

1. Introduction

The contemporary work environment is undergoing dynamic transformations, strongly driven by the ongoing process of digitalization and the continuous advancement of information technologies. Under these evolving conditions, the concept of work–life balance has gained particular importance as a key research domain within the fields of management, economics, and occupational psychology. This balance should not be understood as a static state, but rather as a dynamic adaptive process involving the harmonious integration of professional and non-professional roles while maintaining the psychological well-being of the individual (Bello et al., 2024).

On the one hand, digital tools enable the optimization of time management, task automation, and increased productivity. On the other hand, they contribute to the potentially detrimental blurring of boundaries between professional and private life. The resulting pressure of constant availability may lead to information overload, difficulties in separating work time from leisure time, and increased stress levels (Duan, Deng, Wibowo, 2023).

In response to these challenges, there is a clear need to seek new solutions. In this context, particular attention is being given to digital assistants based on artificial intelligence (AI)[1], which—through the use of machine learning algorithms and natural language processing (NLP)—offer advanced capabilities for personalization and human support.

The aim of this paper is to identify the potential of AI-based digital assistants as innovative tools supporting the maintenance and management of work–life balance. The study seeks to discuss AI digital assistants in the context of their application in productivity enhancement, work organization, and the improvement of users' psychological well-being. The article also aims to identify key benefits, limitations, and challenges associated with the use of AI digital assistants in implementing the work–life balance concept.

The structure of the paper has been designed to achieve the stated research objective and consists of four substantive sections. The first section presents the theoretical foundations of the work–life balance concept. The second part focuses on the characteristics of AI digital assistants, discussing their essence, operational mechanisms, and key functionalities (such as time management, content creation, and communication automation). The third section examines the impact of AI-based systems on productivity and work organization, highlighting their ability to reduce time spent on routine tasks and to support employee well-being[2] through proactive prevention of task overload. The final, fourth section provides a balanced assessment

[1] An AI-based digital assistant is an information system that employs machine learning techniques and natural language processing to support users in task execution, work organization, and decision-making through data analysis and interaction in either textual or voice-based forms.

[2] Employee well-being refers to the overall physical, psychological, and social condition of an individual within the work environment, encompassing levels of job satisfaction, work–life balance, as well as a sense of security and engagement.

of benefits and limitations. It analyzes risks related to excessive dependence on technology and data privacy, outlines development perspectives oriented toward ethical considerations, and emphasizes the need to build appropriate competencies and regulatory frameworks within organizations (Hijry et al., 2024).

2. Theoretical Foundations of Work–Life Balance and the Role of Digital Technologies in Time Management

The concept of work–life balance constitutes a significant area of interest within contemporary management sciences, economics, and occupational psychology. From a theoretical perspective, it refers to an individual's ability to harmoniously integrate professional and non-professional roles while maintaining life satisfaction and psychological well-being. The literature emphasizes that this balance is not a static condition but rather a dynamic adaptive process, dependent on changing work conditions, family life, and individual preferences. Key determinants in this context include the flexibility of work organization, employee autonomy, organizational culture, and the level of employer support (Casper et al., 2025).

The modern work environment is undergoing intensive transformations under the influence of digitalization and the development of information technologies. Digital tools—such as task management systems, mobile applications, and communication platforms—significantly affect the organization of working time and the execution of professional duties. On the one hand, they enable increased efficiency, improved planning, and faster access to information. On the other hand, they contribute to the phenomenon of "boundary blurring" between professional and private spheres, resulting from constant employee availability and the pressure for immediate responsiveness to communications.

From the perspective of time management theory, digital technologies serve as instruments supporting the optimization of time resource utilization. They enable the automation of repetitive activities, integration of data from multiple sources, and monitoring of user activity. Consequently, they facilitate more conscious task management, prioritization, and the elimination of inefficient actions. The literature indicates that, when appropriately applied, such technologies may contribute to increased productivity and the reduction of cognitive load[3].

At the same time, the ambivalent nature of digital technologies in the context of work–life balance should be emphasized. Excessive use of information technologies may lead to information overload, increased stress, and difficulties in separating work time from leisure

[3] Reduction of cognitive load refers to the limitation of the amount of information and mental effort required to process tasks, thereby enabling more effective decision-making and improving concentration and cognitive performance.

time. As a result, there emerges a need for conscious and balanced use of technology, taking into account both efficiency-related aspects and user well-being (Figure 1).

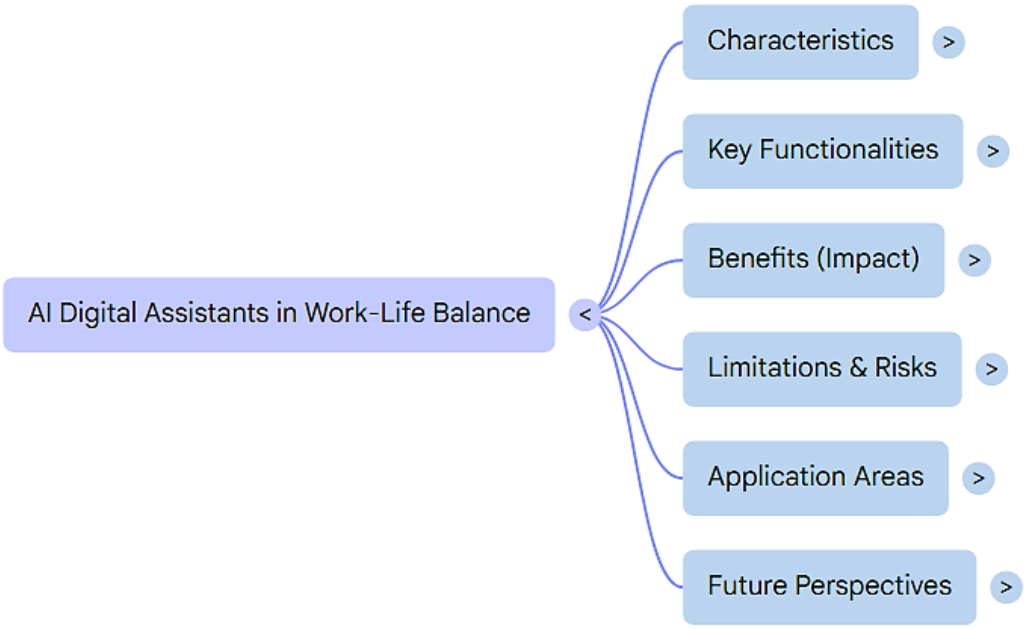

Figure 1. Synergy of Work, Life, and Technology in Maintaining Digital Balance.
Source: author's own elaboration.

In the context of the above considerations, solutions based on artificial intelligence gain particular importance, as they offer new opportunities in terms of personalization and automation of time management. They constitute a significant direction in the development of tools supporting the maintenance of work–life balance, which justifies further analysis of their role in the subsequent sections of this paper.

3. AI-Based Digital Assistants – Characteristics, Functionalities, and Areas of Application

AI-based digital assistants represent one of the most dynamically developing categories of tools supporting user functioning in the digital environment (Limna et al., 2022). From a definitional perspective, they are information systems that utilize advanced machine learning algorithms, natural language processing (NLP)[4], and data analytics to interact with users and assist them in performing a wide range of tasks. Their essence lies in the ability to process information in a manner analogous to human reasoning and to adapt to the individual preferences of the user (Table 1).

[4] Natural Language Processing (NLP) is a field of artificial intelligence concerned with the analysis, understanding, and generation of natural language by computers, enabling human–computer interaction in a manner analogous to interpersonal communication.

Table 1.
Characteristics and Functionalities of AI-Based Digital Assistants

Functionality Category	Function Description	Key Benefits	Area of Application (Professional/Private)	Mechanism of Operation
Time and Task Management	Schedule planning, automated reminders, and task prioritization	Optimization of time utilization, improved daily organization, and reduction of cognitive load	Professional and Private	Predictive analytics and machine learning (analysis of schedules and user behavior
Communication Automation	Generation of message responses, meeting organization, and information filtering	Maintenance of effective communication and coordination of activities, particularly in remote work settings	Professional and Private	Natural Language Processing (NLP) and adaptive models
Content Creation Support	Generation of documents, summaries, and analyses	Reduction of workload associated with routine administrative tasks	Professional	Natural Language Generation (NLG) and machine learning algorithms
Analytical and Decision-Support Functions	Data processing and provision of insights supporting decision-making	Facilitation of decision-making in conditions of increasing digital complexity	Professional	Data analytics and predictive models
Personal Efficiency Optimization	Identification of work patterns, indication of peak productivity periods, and suggestion of breaks	Prevention of fatigue and support for work–life balance	Professional and Private	Machine learning and user behavior pattern analysis
Work Environment Integration	Integration of various tools (communication platforms, office applications) within a single environment	Reduction of the need to switch between applications	Professional	API integration and cloud computing

Source: author's own elaboration.

A fundamental characteristic of AI-based digital assistants is their interactivity and capacity to learn from accumulated data. Unlike traditional information systems that operate according to predefined rules, AI assistants employ predictive and adaptive models, enabling them not only to respond to user commands but also to proactively suggest specific actions. These mechanisms involve the analysis of user behavior, schedules, preferences, and the context of performed activities, which allows for the generation of personalized recommendations.

The functionalities of AI-based digital assistants are multidimensional and encompass a wide range of applications. Among the most significant are time and task management, including schedule planning, automated reminders, and task prioritization. An important role is also played by communication automation, such as generating responses to messages, organizing meetings, or filtering information. Another key area is content creation support, including the generation of documents, summaries, and analyses. Increasing importance is also attributed to analytical functions, which involve data processing and the provision of insights supporting decision-making.

In the context of managing work–life balance, particular importance is assigned to functionalities related to optimizing time utilization and reducing cognitive load. Digital assistants can identify user work patterns, indicate periods of highest efficiency, and suggest breaks to prevent fatigue. Moreover, they facilitate better daily organization through the integration of various tools and information sources within a single environment, thereby reducing the need to switch between multiple applications.

The areas of application of AI-based digital assistants include both professional and private environments. In organizations, they are used to streamline business processes, manage projects, support teamwork, and automate routine administrative tasks. In the context of remote and hybrid work, they play a particularly important role in coordinating activities and maintaining effective communication. In private life, they assist users in planning daily activities, managing household responsibilities, and organizing leisure time.

The development of AI-based digital assistants is closely linked to technological progress in data processing and the increasing availability of cloud-based services. Integration with other systems—such as communication platforms, office applications, and task management systems—enhances their functionality and usability. At the same time, the importance of issues related to data security, privacy, and the ethics of artificial intelligence use is growing[5].

In light of the above considerations, AI-based digital assistants constitute an important tool supporting individual functioning in conditions of increasing complexity in both the work environment and everyday life. Their ability to automate processes, personalize actions, and support decision-making makes them potentially crucial in time management and in maintaining work–life balance.

[5] The ethics of artificial intelligence use refers to the principles and standards governing the design, implementation, and application of AI systems in a responsible manner, taking into account, inter alia, the protection of privacy, transparency of operation, fairness, and the minimization of risks related to discrimination and misuse.

4. Impact of AI-Based Digital Assistants on Productivity, Work Organization, and User Well-Being

The impact of AI-based digital assistants on productivity, work organization, and user well-being constitutes an important area of research in the context of the increasing digitalization of the professional environment. These solutions, through the use of advanced data analytics and machine learning algorithms, enable the automation of numerous processes and support users in effective time and task management (Mattarelli et al., 2024). Consequently, their application may lead to significant changes in the way work is organized, influencing both its efficiency and the quality of individual life (Figure 2).

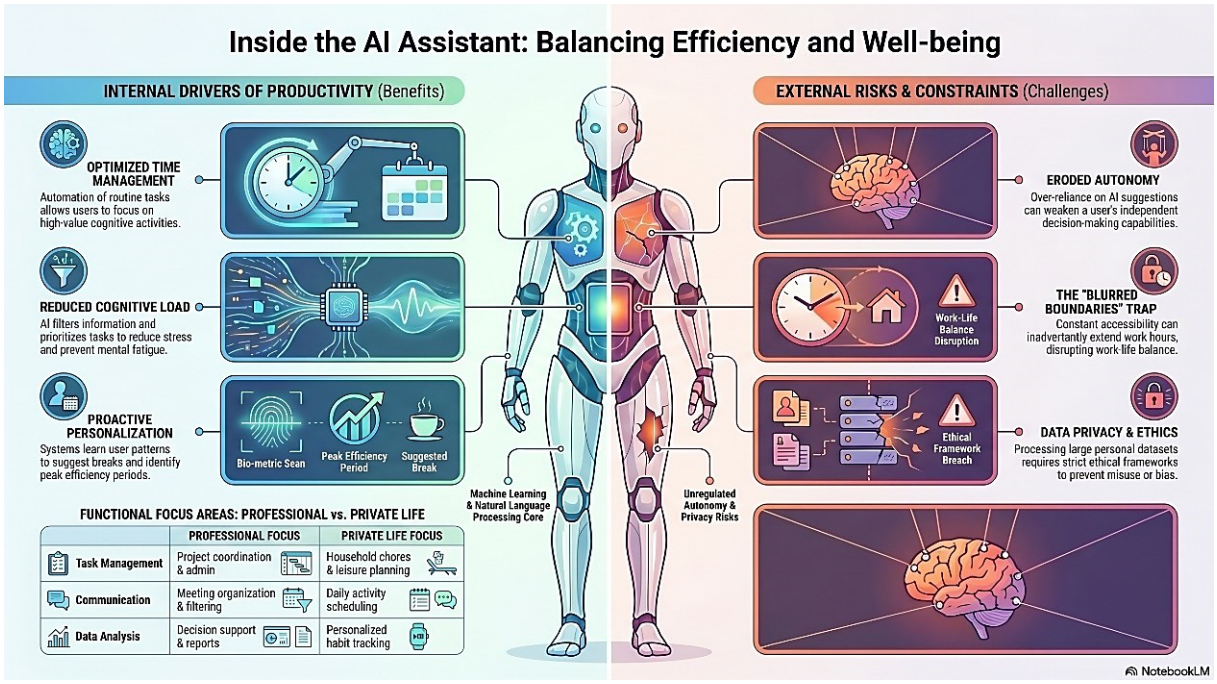

Figure 2. Benefits and Challenges of AI Assistants.

Source: author's own elaboration.

In the area of productivity, AI-based digital assistants primarily contribute to reducing the time devoted to routine and repetitive tasks. The automation of activities such as scheduling meetings, managing correspondence, or generating documents enables users to focus on tasks requiring creativity and decision-making. Moreover, due to their capacity to analyze large datasets, these assistants can provide recommendations regarding optimal task execution, which translates into increased work efficiency. The literature also emphasizes the role of these tools in reducing errors resulting from the human factor, thereby further improving the quality of performed activities.

Another important aspect is the impact of AI-based digital assistants on work organization. These tools enable more effective schedule planning, taking into account both task priorities and individual user preferences. Through integration with various information systems, assistants can synchronize data from multiple sources, allowing for comprehensive management of both professional and personal activities. In the context of remote and hybrid work, their role in coordinating team activities and maintaining continuity of communication becomes particularly significant. As a result, it is possible to enhance process transparency and achieve better utilization of available time resources.

From the perspective of user well-being, AI-based digital assistants can function as tools supporting work–life balance. By monitoring activity and analyzing work patterns, these systems are capable of identifying situations of task overload and suggesting actions aimed at its reduction, such as introducing breaks or reorganizing schedules. The literature indicates that, when appropriately used, such technologies may contribute to stress reduction and improved job satisfaction.

At the same time, attention should be paid to the potential risks associated with the use of AI-based digital assistants. One of these is the risk of excessive automation, which may lead to reduced user autonomy and increased dependence on technology. Furthermore, the constant availability of digital tools may encourage the extension of working hours and hinder the maintenance of clear boundaries between professional and private life. Issues related to data privacy and information security also constitute an important element in the evaluation of these solutions.

AI-based digital assistants exert a multidimensional impact on productivity, work organization, and user well-being. Their potential to support efficiency and work–life balance is significant; however, its full realization requires a conscious and responsible approach to the implementation and use of these technologies. In particular, it is necessary to consider both the benefits and limitations resulting from their application (Wellsandt et al., 2022).

5. Benefits, Limitations, and Development Perspectives of AI in Managing Work–Life Balance

The use of artificial intelligence in managing work–life balance entails a range of benefits, but also significant limitations and challenges that determine the directions of further development of these technologies. The analysis of these aspects allows for a more comprehensive understanding of the role of AI-based digital assistants in shaping contemporary models of work and lifestyle (Table 2).

Table 2.
Key Aspects of AI Application in Work–Life Balance Management

Category of Analysis	Key Aspects	Detailed Description
Benefits of AI Utilization	Automation and Personalization	Automation of routine activities (e.g., meeting scheduling, task organization) combined with the ability to learn user preferences in order to provide personalized recommendations
Limitations and Risks	Dependence, Privacy, and Boundaries	Risk of excessive dependence on technology, reduced decision-making autonomy, and threats related to unauthorized access to user activity data
Future Development Directions	Ethics and Predictive Analytics	Advancement of personalization technologies and predictive analytics while incorporating ethical and social considerations
Organizational Implementation	Digital Competencies and Integration	Implementation of AI tools within existing organizational systems and the development of appropriate digital competencies among employees

Source: author's own elaboration.

Among the most significant benefits resulting from the application of AI is, above all, the increased efficiency of time management. Digital assistants enable the automation of numerous routine activities, such as scheduling meetings, organizing tasks, and analyzing timetables, allowing users to focus on activities of higher cognitive value. Owing to their ability to analyze data and learn user preferences, these tools provide personalized recommendations regarding the organization of the working day, thereby facilitating a better alignment of professional duties with individual needs and personal rhythms of functioning.

Another important benefit is the potential to reduce cognitive load and stress associated with information overload and excessive responsibilities. AI-based digital assistants can support users in information filtering, prioritization, and progress monitoring, which enhances the sense of control over performed tasks. Consequently, this may lead to improved psychological well-being and increased job satisfaction. Additionally, the integration of various tools and systems within a single environment promotes process organization and reduces informational chaos.

However, the use of AI in managing work–life balance is also associated with several limitations. One of the most critical is the risk of excessive dependence on technology, which may result in reduced user autonomy and a diminished capacity for independent decision-making. Furthermore, the constant availability of digital tools may encourage the extension of working hours and hinder the clear separation between professional and private spheres. As a result, instead of supporting balance, these technologies may disrupt it.

An important issue also concerns data privacy and security. AI-based digital assistants operate on large volumes of user activity data, which creates risks related to unauthorized access or misuse of information. In the organizational context, challenges also include the integration of these tools with existing systems and ensuring an adequate level of employees' digital competencies (Table 3).

Table 3.
Application of AI in Work–Life Balance Management

Category of Analysis	Impact on the User	Challenges and Risks	Development Perspectives
Benefits of AI Utilization	Increased efficiency in time management, reduction of cognitive load and stress, improved psychological well-being, and a greater sense of control	No data available in the source	Further enhancement of digital assistant precision through advanced machine learning algorithms and improved integration with calendar systems
Limitations and Risks	Extension of working hours, difficulties in separating professional and private spheres (disruption of balance), and reduced autonomy	Necessity to ensure data security, prevent digital exclusion, and mitigate loss of privacy	Introduction of stricter legal regulations (e.g., AI Act) and the implementation of "privacy-by-design" systems
Future Development Directions	Improved alignment of tools with individual needs and protection against negative effects of digitalization	Establishment of regulatory frameworks and ethical principles for technology implementation	Widespread use of AI for predicting burnout and suggesting real-time work breaks
Organizational Implementation	Requirement for continuous learning; potential for better alignment of work with individual functioning rhythms	Insufficient digital competencies among staff and technical challenges related to system integration	Development of AI literacy training programs and the emergence of new standards for technology-supported work culture

Source: author's own elaboration.

From a developmental perspective, a further increase in the importance of artificial intelligence in managing work–life balance can be anticipated (Bhat, Yousuf, Saba, 2023). Advances in personalization technologies, predictive analytics, and system integration will enable an even better alignment of tools with individual user needs. An important direction of development will also involve the advancement of solutions that incorporate ethical and social considerations, including the protection of privacy and the mitigation of negative effects associated with excessive digitalization (Figure 3).

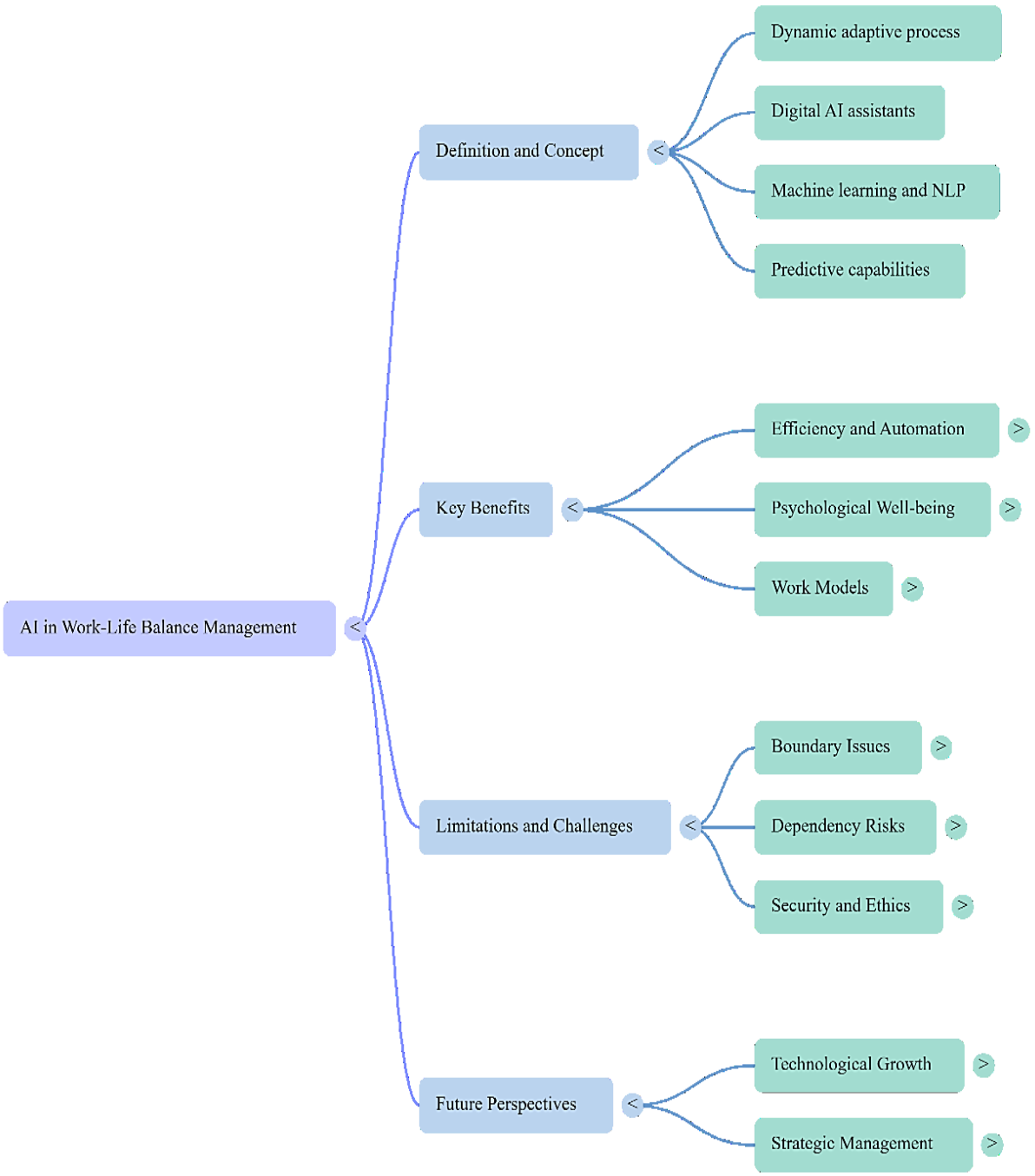

Figure 3. Artificial Intelligence in Work–Life Balance
Source: author's own elaboration.

Artificial intelligence demonstrates significant potential in supporting the management of work–life balance; however, its effective utilization requires a conscious approach that takes into account both its benefits and limitations. Of key importance will be the further development of user competencies, the establishment of appropriate regulatory frameworks, and the integration of technology with organizational practices that promote employee well-being (Rienties et al., 2024).

6. Summary and references

In summary, the conducted analysis indicates that AI-based digital assistants constitute a promising tool for supporting the management of work–life balance; however, their actual effectiveness depends on a range of organizational and individual determinants. The article demonstrates that functionalities related to intelligent time management, task prioritization, and interaction personalization are particularly important, as they can contribute to reducing information overload and improving user well-being. At the same time, it should be emphasized that the absence of appropriate implementation frameworks, excessive automation, or uncontrolled expansion of work scope may lead to adverse effects, including increased technostress and the blurring of boundaries between professional and private life.

The considerations presented in this article should primarily be treated as a review-conceptual study, which identifies a research gap in the integration of studies on AI assistants with the literature on work–life balance, technostress, and boundary management. The contribution of the article lies in structuring these themes and indicating directions for further research, particularly of an empirical nature, including the analysis of specific tools, criteria for their evaluation, and the long-term effects of their use. Future research should also take into account the organizational context of implementation and individual user differences, which would enable a more comprehensive assessment of the potential and limitations of the analyzed solutions.

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