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STUDY REPORT

Project Business in the Age of AI: Future Competences, Changing Roles and Development Needs

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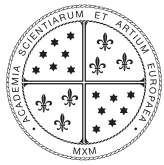

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Maribor, 2026

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FOREWORD

Project business is entering a new phase of development. For several decades, project management has been recognized as a key organizational capability for implementing strategy, delivering transformation, managing innovation, and creating value in complex environments. Today, this capability is being reshaped by artificial intelligence. AI is no longer a distant technological promise. It is increasingly becoming part of the everyday reality of project, program, and portfolio management.

This development affects the project management profession at its core. AI-supported systems are beginning to assist with, augment, or substitute tasks that have traditionally been performed by project professionals: planning, scheduling, reporting, documentation, risk analysis, resource allocation, progress monitoring, and decision preparation. These changes raise fundamental questions. What remains the distinctive contribution of human project professionals when AI takes over routine work? Which competences will be required to lead, steer, and support AI-enabled project business? How can organizations prepare their project workforce for this transition? And how should professional standards, certification systems, and academic programs respond?

The present study addresses these questions in a timely and highly relevant way. It provides empirical evidence from the German project management community and contributes to a growing international discussion on the future of project business in the age of AI. The results show that AI adoption is expected to accelerate significantly in the coming years. They also show that the future of project management will not be defined by technology alone. It will be defined by the ability of individuals, organizations, and professional communities to develop the competences needed to use AI responsibly, critically, and in ways that create value.

For Alma Mater Europaea, this topic is of particular importance. Project management research has always been concerned with the relationship between practice, competence, organization, and societal transformation. AI now adds a new

and powerful dimension to this relationship. It challenges established role models, changes the division of work between humans and machines, and creates new demands for leadership, governance, ethics, learning, and organizational capability. This makes AI-enabled project business a rich and urgent research arena.

We therefore see this study not only as a contribution to current practice, but also as an invitation to the academic community. More research is needed on how AI changes project roles, competence requirements, decision-making, project governance, PMOs, leadership, collaboration, well-being, and professional identity. We need longitudinal studies, comparative international research, sector-specific analyses, qualitative case studies, and theory-building work. We also need stronger bridges among academic research, professional associations, and organizations currently experimenting with AI in project business.

The results presented in this report point to a clear conclusion: AI will increasingly take over routine tasks, but human competence will become more important, not less. The future project professional will need to combine project management expertise with AI literacy, data literacy, critical judgment, ethical awareness, leadership, contextual understanding, and the ability to orchestrate human-AI collaboration. This is both a challenge and an opportunity for the profession.

I would like to thank the authors, the participating project professionals, and the partner organizations involved in this study. Their contribution helps us better understand one of the most important transformations currently affecting project business. I hope this report will stimulate further research, professional debate, and practical action.

The future of project management will not simply happen to us. It must be researched, understood, and actively shaped.

Prof. Dr Mladen Radujkovic
Head of the Doctoral Study Program in Project Management

EXECUTIVE SUMMARY

Artificial intelligence is rapidly changing the nature of project business. Tasks that have traditionally been associated with project management, such as planning, monitoring, reporting, documentation, risk analysis, resource allocation, and decision preparation, are increasingly supported by, or partially replaced by, AI. This development does not make project management obsolete. Rather, it changes the role of project professionals and the competence profile required to create value in AI-enabled project business.

This study investigates future competence requirements for project business in times of artificial intelligence. It was conducted in Germany and focused on two guiding questions: first, which future competences are required in light of the growing importance of AI in project business; and second, how these competences can be acquired amid the increasing dynamics of project-based work. The survey was distributed through the GPM newsletter and LinkedIn. Around 2,500 people were reached, and 300 valid responses were included in the analysis. The respondents were highly experienced project professionals, with an average of 18.3 years of project management experience and 72.2% of their working time spent on project-related activities.

The results indicate that AI is expected to transform the project business over the next few years. Respondents estimate that AI will substitute approximately 22.2% of traditional project management tasks in 2025, rising to 51.6% by 2030 and 63.5% by 2035. This indicates a substantial shift in the division of work between humans and AI. Routine-oriented, administrative, and information-processing tasks are expected to be increasingly automated or AI-supported. At the same time, human project professionals will be required to take stronger responsibility for judgment, interpretation, leadership, stakeholder engagement, governance, and ethical decision-making.

The study also shows a high willingness to use AI. Respondents strongly agree that they intend to use more AI in project management in the future and expect it to improve project and business performance. The UTAUT-based regression analysis confirms that performance expectancy is the dominant predictor of intention to use AI. In other words, project professionals are most likely to adopt AI when they believe it will deliver clear, practical benefits, such as better planning, faster reporting, improved risk management, more reliable forecasts, greater transparency, and better decision support.

However, the results also reveal an implementation gap. While the expected usefulness of AI is high, respondents rate the ease of AI application and the availability of organizational and technical prerequisites lower. This means that organizations should not assume that AI adoption will happen automatically. AI tools need to be embedded in suitable data structures, governance frameworks, learning environments, and project management processes. Without these conditions, AI adoption may remain fragmented and experimental.

A central finding is that traditional project management competences are not seen as becoming irrelevant. Most respondents disagree with the statement that traditional PM competences will become less important due to AI. Instead, the results point to a reconfiguration of competence requirements. Project management competences remain necessary, but their application changes. Planning, monitoring, controlling, and reporting will increasingly be AI-supported, while human project professionals will need to validate AI outputs, interpret context, manage ambiguity, align stakeholders, and make responsible decisions.

The competence rankings by role show that AI-induced changes in competence are not uniform. Management roles require a strong combination of digital, data, and renewed management competences. Steering roles increasingly require data-informed management, strategic decision-making, and the ability to use AI-supported insights responsibly. Support roles, including PMOs and project support functions, are expected to play a central role in governance, standardi-

zation, competence development, and the institutionalization of AI-enabled project business. This suggests that role-specific competence pathways are needed rather than generic AI training for all project professionals.

Respondents are highly aware of changing competence requirements. A large majority state that they are aware of these changes, and 89% expect future competence requirements to significantly impact the selection, deployment, and development of personnel in project business by 2030. Readiness for competence development is also very high: 91% of respondents report being ready to develop their competences to meet future requirements.

The preferred development formats are practical and interactive. Learning-by--doing is rated highest, followed by online courses, peer learning, cross-generational exchange, mentoring, coaching, and innovation-oriented formats. This indicates that future competence development should be embedded in real project work. AI-related competences cannot be developed through abstract training alone; they require experimentation, reflection, feedback, and repeated application in concrete project contexts.

The study also identifies important barriers and enablers. The strongest barrier to acquiring new competences is the fear of job displacement. Further barriers include silo thinking, poor knowledge sharing, lack of organizational support, and insufficient opportunities for experimentation. The strongest enabler is psychological safety, followed by strategic workforce planning, innovative learning formats, and a clear future competence framework. This shows that AI competence development is not only a technical learning issue. It is also a cultural, emotional, and organizational challenge.

Generation Z does not differ as strongly from older generations as might have been expected. Although Gen Z respondents appear somewhat more active in current AI use and somewhat more open to the idea that traditional PM competences may become less important, these differences are not robust enough to support broad generational conclusions. AI adoption and competence development should

therefore not be reduced to generational stereotypes. Nevertheless, changing expectations regarding digital tools, development opportunities, autonomy, flexibility, and well-being remain important for the future design of project work.

The study contributes to theory by extending UTAUT to the context of AI-enabled project business and by connecting technology acceptance with competence development. It also contributes to the project management literature by providing empirical evidence that AI does not simply replace project management but changes the task structure and competence profile of project professionals. The findings support a shift from the project manager as administrator and controller toward the project professional as orchestrator of human-AI collaboration, strategic alignment, governance, stakeholder engagement, and organizational learning.

For project management associations, the study suggests that competence standards, certification systems, and continuing professional development programs should be reviewed and updated. AI literacy, data literacy, AI governance, digital ethics, critical judgment, and human-AI collaboration should become visible elements of future competence frameworks. Associations should also support communities of practice, practical guidance, and evidence-based standards for responsible AI use in project business.

For organizations, the study implies that AI adoption must move beyond experimentation with tools. Organizations need a clear AI roadmap for project and business operations, role-specific competence pathways, strong PMO involvement, data and governance structures, safe experimentation spaces, and continuous learning systems. They also need to address fears of job displacement and communicate how project roles will evolve.

For individuals, the message is equally clear. Project professionals should actively develop AI literacy, data literacy, critical judgment, digital confidence, leadership, communication, and learning agility. The future project professional will not be replaced by AI, but will work with AI to create better project outcomes.

The call for action is urgent. By 2030, AI is expected to have a significant impact on project roles, competence requirements, and personnel development. Project business should therefore prepare now. AI will increasingly take over routine tasks. Human project professionals must take responsibility for direction, judgment, governance, learning, and value creation. The future of project management will not be secured by defending traditional routines, but by developing the competences required to lead AI-enabled project business responsibly and effectively.

1. INTRODUCTION

Artificial intelligence (AI) is rapidly entering the field of project management and the project business. What only a few years ago was largely discussed as a technological opportunity or future scenario has now become an operational reality in many organizations. Generative AI, machine learning, predictive analytics, recommendation engines, natural language processing, and AI-based automation are increasingly applied to support, accelerate, or substitute activities that have traditionally been regarded as core tasks of project management. These include, among others, project planning, scheduling, resource allocation, risk analysis, progress monitoring, reporting, documentation, stakeholder communication, and decision preparation.

This development is not merely a matter of digital tool support. It points to a more fundamental transformation of project work and, consequently, of the role of the project manager. Gartner (2019) predicted that a substantial share of today's project management tasks would be eliminated by 2030 as AI takes over. While such forecasts require careful interpretation and should not be reduced to a deterministic replacement narrative, they nevertheless highlight AI's disruptive potential for project-based work. More recent discussions on AI and work also suggest that the relevant question is not only whether jobs will be eliminated but also whether they will be enhanced, reconfigured, or partially replaced by AI-enabled systems (Srinivasan, 2026). In this sense, the future of project management is unlikely to be characterized by a simple substitution of people with machines. It is more likely to involve a significant reallocation of tasks between humans and AI.

Taylor (2026) takes this argument further by describing the emergence of the "invisible project manager," suggesting that AI will increasingly run tomorrow's projects in ways that may fundamentally change the visibility, function, and identity of the project manager. This perspective underlines the speed and de-

pth of the current development. AI is not only improving existing project management processes; it is reshaping the assumptions on which many of these processes are based. If AI systems can generate schedules, identify risks, propose countermeasures, draft reports, analyze dependencies, and prepare management decisions, then the value contribution of human project managers must be reconsidered. The central question is no longer whether AI will affect project management, but how the profession, organizations, and individuals should respond to this transformation.

The implications are substantial. Traditional project management has long been associated with the planning, coordination, monitoring, and control of temporary organizations. These activities remain important, but many of their routine components are increasingly supported or automated by AI. The future role of project managers may therefore shift from administrative coordination and information processing toward sensemaking, leadership, judgment, stakeholder engagement, ethical reflection, strategic alignment, and the orchestration of human and artificial intelligence. In other words, AI may take over more of the routine, while humans are expected to assume stronger responsibility for direction, interpretation, legitimacy, and accountability.

Against this background, this study investigates future competence requirements for project business in the age of AI. The empirical focus is Germany, where project-based work plays a significant role across industries and where organizations are increasingly confronted with the need to integrate AI into existing project, program, and portfolio management practices. The study was conducted as a research initiative of Alma Mater Europaea University with the support of the leading professional association in Germany, the GPM Deutsche Gesellschaft für Projektmanagement e. V. It addresses the increasing gap between the rapid technological development of AI applications and the slower development of individual and organizational competences required to use these technologies effectively, responsibly, and strategically.

The study is guided by two central research questions:

1. Which future competences are required in view of the increasing importance of AI in the project business?
2. How can these future competences be obtained in view of the increasing dynamics in the project business?

These questions are relevant for several reasons. First, project business is particularly exposed to AI adoption because it relies heavily on information, coordination, knowledge work, and decision-making under uncertainty. Second, the competence profiles of project managers, project team members, PMO professionals, portfolio managers, sponsors, and executives may change significantly within only a few years. Third, organizations need to understand not only which competences will be needed, but also how these competences can be developed under conditions of increasing speed, complexity, and ambiguity. Finally, professional associations and certification bodies need evidence-based insights to update competence standards, qualification pathways, and certification systems.

The theoretical foundation of the study is built on the Unified Theory of Acceptance and Use of Technology (UTAUT). UTAUT provides a useful lens for analyzing AI adoption in project-based businesses by linking technology acceptance to performance expectations, effort expectations, social influence, and facilitating conditions. In the context of AI-enabled project management, these dimensions are particularly relevant. Project professionals are more likely to adopt AI if they expect it to improve performance, if the technology is perceived as usable, if relevant stakeholders support its adoption, and if the organizational environment provides the necessary infrastructure, governance, training, and support. At the same time, AI adoption in project business is not only a technology acceptance issue. It is also a competence development issue. The ability to use AI productively depends on the interaction between individual readiness, organizational conditions, perceived usefulness, perceived risks, professional identity, and the availability of learning opportunities.

Using UTAUT as a conceptual basis, the study explores both adoption-related and competence-related aspects of AI in project business. It investigates how project professionals perceive the substitution of management tasks by AI, how they assess the changing relevance of traditional project management competences, how aware they are of future competence requirements, and how willing they are to develop these competences. In addition, the study examines preferred forms of competence development, expectations for organizational support, perceived barriers, and enabling factors. This allows for a more comprehensive understanding of the transition currently underway in the project business.

The findings show that the expected changes are significant and will materialize within the next few years. Respondents do not perceive AI as a distant future phenomenon. Rather, they expect AI to substitute a considerable share of management tasks in project business by 2030 and even more so by 2035. At the same time, the results indicate that traditional project management competences will not simply become irrelevant. Instead, they will need to be complemented by new or intensified competences, including AI literacy, data literacy, critical thinking, ethical judgment, change competence, learning agility, stakeholder orientation, and leadership in human-AI collaboration. This suggests that project management enters a phase of competence recombination rather than competence replacement.

For organizations engaged in project-based work, these findings have direct consequences. They need to define strategic objectives for the use of AI in project, program, and portfolio management. They must establish governance structures, data architectures, technical infrastructure, and learning environments that enable responsible, value-creating use of AI. They also need to redesign roles, career paths, and development programs in order to prepare project professionals for AI-enabled work. The challenge is not limited to implementing tools; it involves a broader transformation of project business as a socio-technical system.

For individuals, the implications are equally significant. Project professionals will need to take responsibility for their own development and actively acquire the

competences required for AI-enabled project work. This includes the ability to interact with AI systems, critically evaluate AI-generated outputs, understand data and model limitations, and integrate AI-based insights into human decision-making. At the same time, individuals will need to strengthen those competences that become more important precisely because AI takes over routine tasks: leadership, communication, negotiation, creativity, ethical reasoning, and contextual judgment.

Professional project management associations will also have to take these results seriously. Standards for project management competence and competence development, including certification systems, are influential instruments for shaping professional identity and practice. If AI changes the task structure and competence requirements of project business, then standards and certifications must reflect this development. This does not mean abandoning established competence baselines. Rather, it means reviewing and extending them in light of AI-enabled project work. Associations need to consider how AI literacy, data-informed decision-making, human-AI collaboration, digital ethics, and AI governance can be integrated into competence models, training programs, assessments, and continuing professional development.

The structure of this report reflects this logic. Following this introduction, the report first outlines the study's theoretical basis, including the relevance of UTAUT to understanding AI adoption and competence development in project business. It then clarifies the key concepts on which the study builds, including project business, artificial intelligence, future competences, competence development, and AI-enabled project management. A review of the literature summarizes current knowledge on AI in project management, task substitution, role transformation, technology acceptance, and future competence requirements. The methodological section then describes the research design, data collection, sample characteristics, survey instrument, and approach to data analysis. Subsequently, the results of the empirical study are presented. These results are then discussed in relation to research questions, theoretical assumptions, and existing literature.

The report concludes by identifying contributions to scientific discourse and implications for practice, including recommendations for organizations, individuals, PMOs, and project management associations. A list of references is provided at the end of the report.

Overall, this study contributes to a timely and strategically important debate. AI adoption in project management is progressing rapidly, and its consequences are already becoming visible. However, the critical issue is not technology alone. The decisive question is whether organizations, individuals, and professional communities can develop the competences required to use AI responsibly, effectively, and in a value-oriented manner in project business. The present study provides empirical evidence from Germany and offers a foundation for understanding and shaping this transition.

2. THEORETICAL FOUNDATIONS AND LITERATURE REVIEW

2.1 Project business, role architecture, and traditional competence requirements

Project business refers to the organizational and inter-organizational activities through which projects, programs, and portfolios are initiated, governed, managed, supported, and delivered. It includes customer projects, internal transformation projects, innovation projects, infrastructure projects, product development projects, digitalization programs, strategic change initiatives, and project portfolios. In many organizations, project business has become the dominant mode of implementing strategy, developing new capabilities, delivering customer value, and responding to uncertainty. It therefore includes not only the management of individual projects, but also the governance, steering, support, and continuous development of project-related systems, roles, processes, and competences.

The role architecture of project business can be grouped into three broad categories: management, steering, and support. These categories are not always formally separated in practice. In smaller organizations, several roles may be performed by the same person. In larger project-based organizations, however, role differentiation is typically more explicit.

Management roles are directly responsible for planning, organizing, leading, and controlling project-related work. At the project level, this includes project managers, project leaders, work package managers, agile delivery leads, Scrum Masters, product owners in hybrid environments, and project team leads. At the program level, program managers coordinate several related projects and ensure that benefits and strategic outcomes are realized across interdependent components. At the portfolio level, portfolio managers and portfolio directors oversee

the selection, prioritization, balancing, and monitoring of multiple projects and programs in line with strategy, capacity, and risk appetite. Management roles, therefore, operate at different levels of abstraction: project managers focus primarily on delivery, program managers on coordination and benefits, and portfolio managers on strategic alignment and resource optimization.

Steering roles are concerned with ownership, governance, decision-making, and strategic direction. They include project sponsors, project owners, program sponsors, portfolio boards, steering committees, investment committees, senior responsible owners, executive boards, and customer representatives. These roles provide legitimacy, strategic priorities, funding decisions, escalation paths, and acceptance of results. Steering roles are particularly important in complex project-based businesses because projects often cut across functional boundaries and require trade-offs among time, cost, quality, benefits, risk, compliance, and stakeholder expectations.

Support roles enable project business by providing methods, tools, data, standards, reporting structures, coaching, assurance, and administrative support. They include project management offices (PMOs), enterprise PMOs, portfolio offices, project controllers, schedulers, risk managers, quality managers, configuration managers, change managers, project assistants, resource managers, data analysts, agile coaches, transformation offices, communities of practice, and internal or external consultants. In AI-enabled project business, these support roles become increasingly important because they provide the organizational infrastructure for digital tools, data integration, competence development, and governance.

The IPMA Individual Competence Baseline Version 4.0 (ICB4) provides a useful reference for understanding traditional competence requirements in project, program, and portfolio management. The ICB4 deliberately avoids being tied to specific role titles because role names differ across sectors, languages, and organizational contexts. Instead, it defines the competences required by individuals

working in project, program, and portfolio domains. The ICB4 is structured into three competence areas: Perspective, People, and Practice. These competence areas represent a broad understanding of professional competence that goes beyond technical project management methods.

The Perspective competence area addresses the contextual competences required to understand and navigate the environment in which projects, programs, and portfolios are initiated and executed. It includes strategy, governance, structures and processes, compliance, standards and regulations, power and interest, and culture and values. These competences are essential because project business is never neutral or isolated. Projects are embedded in organizational strategies, institutional constraints, cultural expectations, formal and informal power structures, regulatory requirements, and stakeholder interests. In an AI-enabled environment, these contextual competences become even more significant because the adoption of AI affects organizational governance, compliance, power relations, transparency, accountability, and culture.

The People competence area addresses personal and interpersonal competences. It includes self-reflection and self-management; personal integrity and reliability; personal communication; relationships and engagement; leadership; teamwork; conflict and crisis; resourcefulness; negotiation; and results orientation. These competences capture the social and behavioral dimension of project work. They are relevant because projects are temporary social systems in which people must coordinate their actions under time pressure, uncertainty, and often conflicting expectations. In the context of AI, these competences are unlikely to be substituted. Rather, they may become more important as project professionals need to lead hybrid human-AI work systems, manage uncertainty, build trust in AI-supported decisions, and maintain human commitment in increasingly digitalized project environments.

The Practice competence area encompasses the methods, tools, and techniques for managing projects, programs, and portfolios. For project manage-

ment, these competences include project design; requirements and objectives; scope; time; organization and information; quality; finance; resources; procurement; plan and control; risk and opportunity; stakeholders; and change and transformation. At the program and portfolio levels, select and balance is added as an additional competence element. These Practice competences have traditionally been the most visible part of project management. They are also the area most directly affected by AI because many of their routine components are data-driven and process-oriented, making them suitable for automation or augmentation.

The relevance of the ICB4 for this study lies in its broad understanding of competence. If AI substitutes parts of traditional project management tasks, it would be misleading to conclude that project management competence as such becomes obsolete. Instead, AI affects different competence areas in different ways. Practice competences may be transformed through automation, algorithmic decision support, and predictive analytics. Perspective competences may gain importance because AI creates new governance, compliance, and strategic alignment challenges. People's competences may become critical because leadership, communication, negotiation, ethical judgment, and conflict management remain fundamentally human tasks. The competence shift caused by AI should therefore be understood as a reconfiguration of competence requirements, not as a simple replacement of traditional competences.

This reconfiguration also affects the relationship between management, steering, and support roles. AI may take over or accelerate parts of scheduling, reporting, risk analysis, resource optimization, documentation, and decision preparation. However, steering roles remain responsible for strategic decisions, prioritization, and accountability. Management roles must interpret AI-generated outputs, validate assumptions, facilitate stakeholder alignment, and lead teams through change. Support roles must ensure that AI tools are integrated into project management systems, that data is reliable, that users are trained, and that governance principles are followed. In this sense, AI does not eliminate the role architecture

of project business. It changes the distribution of work, the required competence profiles, and the interfaces between roles.

2.2 UTAUT as a theoretical basis for studying AI adoption in project business

The theoretical basis of this study is the Unified Theory of Acceptance and Use of Technology (UTAUT), originally developed by Venkatesh, Morris, Davis, and Davis (2003). UTAUT was formulated to integrate earlier models of technology acceptance and to explain why individuals intend to use technology and how such intention translates into actual use. Its relevance for this study lies in the fact that AI adoption in project business is not only a technical implementation issue. It is also a behavioral, organizational, and competence-related issue. Project professionals will use AI productively only if they perceive value, understand how to use it, experience sufficient organizational support, and are influenced by relevant professional and social expectations.

The original UTAUT model includes four core determinants: performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy refers to the degree to which individuals believe that using technology will help them improve their job performance. In project business, this may include expectations that AI improves planning accuracy, accelerates reporting, enhances risk detection, supports resource allocation, reduces administrative workload, or improves decision quality. Performance expectancy is particularly relevant in project management because projects are typically assessed against performance dimensions such as time, cost, quality, benefits, stakeholder satisfaction, and risk exposure.

Effort expectancy refers to the perceived ease of using technology. In the context of AI, this includes the extent to which project professionals perceive AI tools as understandable, accessible, reliable, and compatible with their work routines. Even if AI systems promise high performance benefits, adoption may remain li-

mited if the tools are perceived as complicated, opaque, time-consuming, or difficult to integrate into existing project management practices. For project professionals who work under high time pressure, the perceived effort of learning and applying AI may become a major barrier.

Social influence refers to the degree to which individuals perceive that important others believe they should use technology. In project business, social influence may originate from top management, sponsors, PMOs, clients, peers, professional associations, certification bodies or the wider discourse in the project management profession. If senior leaders frame AI as strategically important, if PMOs promote AI-enabled practices, if clients expect AI-supported transparency, or if professional communities present AI competence as part of modern project professionalism, adoption is likely to increase. Conversely, if AI is perceived as risky, illegitimate, or professionally threatening, social influence may inhibit adoption.

Facilitating conditions refer to the extent to which individuals believe that organizational and technical infrastructure exists to support technology use. In AI-enabled project business, facilitating conditions include data availability, data quality, tool access, IT integration, information security, governance rules, training, coaching, helpdesk support, management attention, learning opportunities, and time for experimentation. This determinant is highly relevant because AI cannot be adopted effectively through individual motivation alone. It requires organizational conditions that enable responsible and productive use.

UTAUT also includes behavioral intention and use behavior as outcome variables, with age, gender, experience, and voluntariness of use as moderators in the original model. Later extensions, especially UTAUT2, introduced additional constructs such as hedonic motivation, price value, and habit, mainly for consumer technology contexts. For the present study, the original UTAUT logic is particularly useful because AI adoption in project-based businesses is primarily situated within organizational and professional contexts. However, certain extensions and contextual adaptations are needed. AI differs from many earlier information

technologies because it can generate outputs, make recommendations, influence decisions, and act with increasing autonomy. Therefore, AI adoption is not only a matter of usability and usefulness, but also a matter of trust, explainability, accountability, perceived risk, ethical acceptability and professional identity.

In this study, UTAUT provides the conceptual foundation for linking AI adoption with competence development. Performance expectancy can be connected to the perceived value of AI for project business. Effort expectancy can be connected to the perceived difficulty of using AI and developing the required competences. Social influence can be connected to the role of organizations, senior managers, peers, clients, and professional associations in shaping expectations. Facilitating conditions can be connected to training, learning infrastructures, governance, data systems, and organizational support. In this sense, UTAUT helps explain not only whether project professionals accept AI, but also how they understand the competence requirements associated with AI adoption.

This is important because the study's research questions are competence-oriented rather than purely technology-oriented. The study asks which future competences are required in light of the growing importance of AI in project business, and how these competences can be acquired amid greater dynamism. UTAUT allows these questions to be examined empirically because competence development can be interpreted as a response to perceived performance benefits, perceived effort, social expectations, and enabling or inhibiting organizational conditions. For example, if project professionals expect AI to improve project performance but perceive insufficient training or support, a competence gap emerges. If they recognize that AI will transform roles but fear job displacement, competence development may be slowed by anxiety. If they experience strong organizational support and relevant learning opportunities, AI adoption and competence development may reinforce each other.

The UTAUT perspective also clarifies why AI adoption cannot be reduced to tool availability. Organizations may provide AI tools, but if users do not perceive value,

the tools are difficult to use, leaders do not legitimize their use, or governance and training are missing, adoption will remain superficial. Conversely, even motivated individuals may not be able to use AI responsibly if organizational data is fragmented, security rules are unclear, project systems are not integrated, or there is no protected space for experimentation. UTAUT therefore offers a suitable theoretical bridge between individual readiness and organizational conditions.

2.3 AI, digital technologies, and the shift in project management competences

The literature on AI and project management has developed rapidly in recent years. Early contributions often focused on the potential of AI to automate specific project management processes, such as effort estimation, scheduling, risk prediction, and resource allocation. Auth, Jokisch, and Dürk (2019), for example, reviewed AI approaches to automated project management and showed that digital technologies had already been explored in various project management applications prior to the current generative AI wave. Fridgeirsson, Ingason, Jonasson, and Jonsdottir (2021) examined the expected near-future effects of AI on project management knowledge areas and demonstrated that AI will affect project management across multiple domains. Holzmann, Zitter, and Peshkess (2022) investigated project managers' expectations of AI and found that it is increasingly perceived as a means of improving decision support and reducing administrative burden.

More recent literature has broadened the discussion. AI is no longer viewed only as a tool for process optimization. It is increasingly seen as a force reshaping project roles, competence profiles, governance structures, and value-creation mechanisms. Müller, Locatelli, Holzmann, Nilsson, and Sagay (2024) provide an overview of AI and project management and identify the need for further research on the implications of AI for the project management profession. Geraldi, Locatelli, Dei, Söderlund, and Clegg (2024) discuss AI for management and organization research from the perspective of project studies, showing that AI also changes how pro-

ject phenomena can be researched, interpreted, and theorized. Papadonikolaki (2026) adds a paradox perspective, suggesting that AI in projects creates tensions rather than linear progress: automation may increase efficiency but also dependency; transparency may improve visibility but also surveillance; augmentation may strengthen human work but also challenge professional identity.

Several contributions focus specifically on competence shifts. Marnewick and Marnewick (2021) argue that the Fourth Industrial Revolution requires a new type of digital intelligence for project managers. Their work suggests that project leaders need digital competences to manage projects in the digital economy and that upskilling cannot be left to chance. Marnewick (2025) extends this discussion by focusing on project leaders' digital capabilities. The central implication is that digital competence is no longer an optional add-on to project management competence. It becomes part of the professional core.

Mariani, Mancini, and Aaltonen (2025) address the gap between project managers, AI literacy, and future project management competences. Their work is particularly relevant for this study because it frames AI literacy as a central competence issue. AI literacy does not mean that every project manager must become a data scientist. Rather, it means that project managers need sufficient understanding of AI concepts, data limitations, algorithmic outputs, ethical implications, and practical use cases to work responsibly with AI-enabled systems. This includes the ability to ask the right questions, interpret AI-generated recommendations, challenge outputs, identify risks, and integrate AI insights into human decision-making.

Mariani and Mancini (2025) also emphasize the role of AI capabilities and organizational agility in creating value. This is important because competence is not only an individual attribute. The value of AI depends on the interaction between individual competences, organizational capabilities, and the agility of the project business system. A project manager may be highly AI-literate, but if the organization lacks data quality, governance, leadership support, or agile learning structu-

res, AI will not create its expected value. Conversely, strong organizational AI capabilities are insufficient if individuals lack the competence to use AI responsibly and critically.

The literature on human-AI collaboration further supports this shift. Daugherty and Wilson (2024) argue that the future of work will be shaped by the combination of human and machine capabilities. Iansiti and Lakhani (2020) show that AI changes strategy and leadership because algorithms and networks become central to value creation. Shneiderman (2022) emphasizes human-centered AI and argues for systems that enhance human control, responsibility, and creativity rather than blindly replacing them. Applied to project business, these arguments imply that future project professionals need to operate in hybrid work systems where human judgment and AI-generated intelligence must be integrated.

The emerging debate on agentic AI intensifies this discussion. Agentic AI systems are not limited to producing text or analyzing data; they can plan, execute subtasks, coordinate workflows, and interact with other systems. In software project management, recent research discusses the possibility of agentic project managers who act as junior project managers or AI assistants with varying degrees of autonomy. Such developments point to a future in which project managers may lead not only human team members but also AI agents. This creates new competence requirements in task delegation, supervision, prompt engineering, validation, accountability, and ethical control.

The shift in competence requirements can therefore be summarised along five dimensions. First, analytical and data-related competences become more important because AI-based project management depends on data availability, interpretation, and validation. Second, digital and AI literacy become essential because project professionals need to understand the capabilities and limitations of AI systems. Third, critical judgment and ethical reasoning become more important because AI outputs can be wrong, biased, incomplete, or inappropriate for the context. Fourth, leadership and communication competences become more cen-

tral because AI adoption changes work routines, role expectations, and power relations. Fifth, learning agility becomes crucial because AI technologies evolve faster than traditional competence development cycles.

This development has consequences for competence development. Traditional training formats remain useful, but they are insufficient if used in isolation. Competence development in AI-enabled project business needs to be continuous, experiential, and embedded in practice. Project professionals need opportunities to test AI tools on real use cases, reflect on their outputs, compare experiences with peers, receive coaching, and develop shared standards for responsible use. Learning-by-doing, peer learning, mentoring, communities of practice, AI labs, and scenario-based exercises are therefore highly relevant. Organizations must move from episodic training to learning ecosystems that connect individual learning, project practice, PMO support, governance, and strategic objectives.

2.4 Generation Z, changing individual expectations and well-being in projects

The competence shift in project business is not only driven by technology. It is also influenced by shifting expectations among individuals entering the project management profession or already participating in it. Generation Z, broadly understood as the cohort born from the late 1990s onward, is increasingly entering project-based work. This generation has grown up in a digital environment and often expects intuitive technology, rapid feedback, flexible work arrangements, meaningful tasks, inclusive leadership, and stronger attention to mental health and well-being. Obradović, Vukomanović, and Todorović (2026) address the future of project management from the perspective of the next generation of professionals. Their work is relevant because it connects future project management competences with the expectations of younger professionals. While generational categories should not be overgeneralized, they are useful as indicators of changing work expectations. Younger professionals are often accustomed to digital tools and may adopt AI-enabled practices more naturally than older cohorts. At

the same time, they may expect more transparency, autonomy, purpose, feedback, and development opportunities. These expectations influence not only recruitment and retention but also how organizations should design competence development in project-based businesses.

The expectations of Generation Z interact with AI adoption in several ways. On the one hand, Gen Z professionals may be more open to digital work practices, AI assistants, online learning platforms, and hybrid collaboration. On the other hand, they may be more sensitive to issues of surveillance, authenticity, work-life boundaries, and meaningful work. If AI is introduced mainly as a tool for control, acceleration, and monitoring, it may conflict with expectations of trust, autonomy, and well-being. If AI is introduced as a means of reducing routine work, improving learning, supporting creativity, and enabling more meaningful project contributions, it may align better with these expectations.

This perspective connects directly to the growing literature on well-being in project-based work. Project work is often associated with high pressure, changing goals, uncertainty, tight deadlines, resource constraints, and complex stakeholder environments. The Association for Project Management's research on the well-being of project professionals highlights that project-based work can be fast-paced and stressful, particularly because project professionals must deliver under time and budget pressure while reconciling changing expectations. Well--being is therefore not a peripheral issue. It is connected to the structural characteristics of project work.

Recent research by Kapsali, Prouska, and Hajikazemi (2025) further emphasizes the importance of well-being practices in project-based organizations. Their findings suggest that project managers have a role not only as delivery agents but also as actors who can support employee voice and contribute to implementing well-being practices. This is significant for AI-enabled project business because AI can influence well-being in both positive and negative ways. Positively, AI may reduce repetitive administrative work, improve transparency, support decision-

-making, and create more space for creative and relational tasks. Negatively, AI may increase performance monitoring, accelerate work rhythms, create fear of skill redundancy or job displacement, and increase pressure to be constantly available and productive.

Well-being, therefore, becomes part of future competence and competence development. Project managers and leaders need to understand how AI changes the project experience. They need to create psychologically safe environments in which team members can express concerns, experiment with AI tools, learn from mistakes, and discuss ethical or practical issues. They also need to manage boundaries: not every task should be accelerated merely because AI makes acceleration possible. Not every form of monitoring is legitimate merely because data is available. Not every AI-generated recommendation should be implemented merely because it appears efficient.

The relationship between well-being and competence development is particularly important. Individuals are more likely to learn and adapt if they experience psychological safety, meaningful work, autonomy, and organizational support. Conversely, fear, overload, and uncertainty may block learning. In the context of AI adoption, this means that organizations must address emotional and motivational aspects of competence development. Training alone will not be sufficient if employees fear being replaced. Communication alone will not be sufficient if workloads increase. AI adoption must therefore be linked to a credible human-centered change narrative: AI should support better project outcomes and better work, not only higher productivity.

Changing expectations around well-being also affects PM associations and certification bodies. If the future of project management is shaped by AI, digital work, and new generational expectations, then competence standards should not focus exclusively on tools and methods. They should also address human sustainability, ethical use of technology, psychological safety, learning orientation, and responsible leadership. The future project professional will need to be competent

not only in managing scope, time, and cost, but also in managing human-AI collaboration in ways that sustain performance and well-being.

2.5 Research gap and conceptual implications for this study

The literature reviewed above points to a clear transformation of project business. AI is increasingly able to support or substitute routine components of project management. Traditional competence models such as IPMA ICB4 remain highly relevant, but their interpretation and weighting are changing. UTAUT provides a theoretical lens for understanding AI adoption by linking perceived usefulness, ease of use, social influence, and facilitating conditions to behavioral intention and use. Recent project management research emphasizes AI literacy, digital intelligence, organizational agility, and human-AI collaboration as emerging areas of competence. At the same time, generational expectations and well-being concerns suggest that competence development must be designed to be meaningful, inclusive, psychologically safe, and aligned with evolving expectations in the workplace.

Despite this emerging literature, several gaps remain. First, much of the literature discusses AI in project management conceptually or from a general perspective. There is still a need for empirical evidence on how experienced project professionals assess future competence requirements. Second, existing technology acceptance models explain adoption, but they do not automatically explain competence development. This study, therefore, connects UTAUT to competence-oriented questions. Third, competence standards such as IPMA ICB4 provide a strong baseline, but there is a need to examine how such standards should be interpreted or extended in the context of AI-enabled project business. Fourth, there is limited empirical knowledge on how individuals believe future competences can be obtained under conditions of increasing dynamism. Fifth, the interaction between AI adoption, generational expectations, and well-being in project business requires further attention.

The present study addresses these gaps by investigating future competences for project business in times of AI in Germany. Germany provides a relevant empirical context because of its strong industrial base, high importance of project business across sectors, established project management professional associations, and ongoing debate about digital transformation and AI in organizations. The study focuses on two main research questions: Which future competences are required in view of the increasing importance of AI in project business? How can these future competences be obtained in view of the increasing dynamics in project business?

Based on the theoretical and literature review, the study assumes that AI adoption in project business is influenced by the interaction of individual, organizational, and professional factors. Individual factors include competence awareness, readiness to learn, perceived usefulness, perceived difficulty, AI literacy, and expectations regarding work and well-being. Organizational factors include strategy, governance, data infrastructure, tool availability, leadership support, training opportunities, and a culture of experimentation. Professional factors include standards, certification systems, competence models, role expectations, and communities of practice.

The conceptual implication is that future competence development in project business cannot be treated as a narrow training issue. It is a strategic and socio-technical transformation challenge. Organizations need to create enabling conditions for AI adoption and competence development. Individuals need to develop new combinations of technical, digital, social, and reflective competences. PMOs need to become competent and AI adoption enablers. Steering roles need to provide legitimacy, investment, and responsible governance. PM associations need to review their standards and certification systems to ensure that they remain relevant in an AI-enabled project world.

The following chapters build on this theoretical foundation. The methodology chapter explains how the empirical survey was designed and conducted. The re-

sults chapter presents the findings on AI adoption, expected task substitution, competence relevance, development readiness, barriers, and enablers. The discussion chapter interprets these findings in light of UTAUT, competence theory, and the literature on AI in project management. The conclusion then summarises the scientific and practical contributions of the study and formulates implications for organizations, individuals, and professional associations.

3. METHODOLOGY

3.1 Research design

This study follows a quantitative, cross-sectional survey design. The purpose of the empirical investigation is to examine how project professionals in Germany assess the future competence requirements of the project business in light of the increasing use of artificial intelligence (AI). The study is both exploratory and explanatory. It is exploratory because the topic of AI-induced competence change in project business is still emerging and because the precise future competence profile of project-related roles is not yet fully established in research or professional standards. It is explanatory because the study builds on established theoretical foundations, especially the Unified Theory of Acceptance and Use of Technology (UTAUT), and uses these foundations to examine how AI-related expectations, organizational conditions, role characteristics, and competence development needs are connected.

The empirical design was guided by two main research questions:

1. Which future competences are required in view of the increasing importance of AI in the project business?
2. How can these future competences be obtained in view of the increasing dynamics in the project business?

These two main questions were complemented by additional analytical questions regarding differences across industries, roles, generations, and proficiency levels. In particular, the study aimed to explore whether management, steering, and support roles differ in their assessment of AI-induced competence requirements, whether competence expectations change over the time horizons 2025, 2030, and 2035, and whether younger generations, especially Generation Z, express different expectations regarding technology use, professional development, and working conditions.

The study was designed as a structured online questionnaire. This approach was chosen because the research objective required a broad empirical basis across industries, roles, and experience levels. A quantitative survey enabled the capture of perceptions, expectations, and self-assessments from a comparatively large group of project professionals. It also enabled statistical comparisons among role clusters, generations, and other respondent groups.

The research context is the German project business. Germany was selected as the empirical context because project-based work is highly relevant across German industry, public administration, infrastructure, consulting, IT, engineering, transformation, and innovation contexts. At the same time, German organizations are facing the need to adopt AI while maintaining high standards for data protection, information security, compliance, professional qualifications, and responsible use of technology. This makes Germany a particularly relevant context for studying the relationship between AI adoption and future project management competences.

3.2 Conceptual basis of the empirical study

The survey was developed based on the theoretical and conceptual foundations discussed in the previous chapter. Three elements were particularly important for the design of the questionnaire: first, the role architecture of project business; second, UTAUT as a model for explaining technology acceptance and use; and third, the dynamic capability perspective as an organizational lens for understanding competence development and transformation.

The role architecture of the study distinguishes between management roles, steering roles, and support roles. Management roles include, for example, project managers and program managers who are directly responsible for planning, coordinating, and delivering project work. Steering roles include portfolio managers, project owners, sponsors, and steering committee members who provide strategic direction, governance, and decision-making authority. Support roles include project management offices, internal and external project management

consultants, project controllers, schedulers, risk managers, and other roles that support project business through standards, tools, reporting, coaching, assurance, and methodological expertise.

This differentiation was important because AI may affect these role clusters differently. Management roles may experience AI mainly through automation of planning, monitoring, reporting, and coordination tasks. Steering roles may be used to experience AI through improved decision support, portfolio transparency, scenario analysis, and governance requirements. Support roles may be affected by the need to integrate AI into project management systems, data structures, reporting routines, learning platforms, and organizational standards. Therefore, the study did not treat project professionals as a homogeneous population, but as a differentiated field of role holders.

The time dimension was operationalized through three time horizons: 2025, 2030, and 2035. This enabled the study to capture perceived competence shifts over time rather than only current competence requirements. The year 2025 represents the current or near-current situation. The year 2030 is a common medium-term horizon in discussions of AI, digitalization, and future work. The year 2035 represents a longer-term horizon in which AI-enabled project business may be more deeply embedded in organizational routines, governance structures, and professional standards.

The generational dimension was included to examine whether age cohorts differ in their expectations regarding AI, competence development, and the work environment. In the survey design, Generation Z was defined as those born between 1997 and 2012, Generation Y (Millennials) as those born between 1981 and 1996, and Generation X as those born between 1965 and 1980. Where relevant, older respondents were included in an additional category. This generational differentiation was not intended to make deterministic assumptions about individuals. Rather, it was used as an analytical variable to explore whether different cohorts express different expectations regarding learning, technology, autonomy, well-being, and organizational support.

The competence model used in the study was developed by combining established project management competence concepts with emerging digital and AI-related competence requirements. The preliminary competence clusters included governance, management, inter-/personal competences, creativity, change, data, context, and digital technologies. Each cluster was represented by several sub-competences. Governance included critical judgment, entrepreneurship, and strategic competences. Management included project design, project planning, and project monitoring and controlling competences. Inter-/personal competences included self-determination, collaboration, and well-being competences. Creativity included the competences of disruption, problem-solving, and resourcefulness. Change included the competences of adaptability, agility, and resilience. Data included competences in data collection, data analytics, and data visualization. Context included situational awareness, power and interest, and cultural intelligence competences. Digital technologies include ICT literacy, digital safety and security, and digital use competences.

The conceptual logic behind this clustering was that AI will not simply replace traditional project management competences. Rather, it is expected to shift the relative importance of different competence areas. Routine-oriented management competences may be increasingly supported by AI, while governance, critical judgment, AI literacy, data competence, change competence, collaboration, well-being, and contextual judgment may become more important. The survey, therefore, asked respondents not only about current competences, but also about expected future competence requirements and development needs.

3.3 Theoretical propositions

The survey was informed by a set of theory-based propositions. These propositions were not formulated as strict causal hypotheses in the sense of experimental research. Rather, they served as guiding assumptions for questionnaire design and subsequent analysis.

From the UTAUT perspective, the study assumed that performance expectancy influences the intention to use AI in project business. In other words, the stronger respondents believe that AI can improve project performance, decision quality, efficiency, risk management, or transparency, the more likely they are to express a positive intention to use AI. This proposition is particularly relevant because project professionals are typically measured against performance-related criteria such as time, cost, quality, benefits, stakeholder satisfaction, and risk exposure.

A second proposition concerned facilitating conditions. It was assumed that facilitating conditions are especially important for support roles in the early phase of AI adoption because these roles face immediate demands for workflow integration. PMOs, project controllers, data analysts, and project management consultants often need to translate AI opportunities into standards, tools, templates, reporting systems, training formats, and governance mechanisms. If organizational support, data infrastructure, training, and access to tools are weak, AI adoption is likely to remain fragmented.

A third proposition concerned social influence, trust, and confidence in governance. It was assumed that these factors are especially important for management and steering roles because these roles legitimize AI use for others. If project sponsors, steering committee members, portfolio managers, and project managers visibly support responsible AI use, adoption may become more acceptable and credible. If they are skeptical, uninformed, or inconsistent, AI adoption may slow down, even if tools are available.

From the dynamic capability perspective, the study assumed that organizations require sensing, seizing, and reconfiguring capabilities to turn AI adoption into durable competence development. Sensing capability refers to the ability to identify future competence gaps by role cluster. Seizing capability refers to the ability to convert AI opportunities into training, governance structures, and redesigned processes. Reconfiguring capability refers to the ability to embed AI adoption within organizational routines, role profiles, and competence systems, rather than leaving it a local tool experiment.

The final overarching proposition was that between 2025 and 2035, the importance of competence will shift away from routine administrative execution and toward orchestration, governance, critical judgment, and organizational learning. This proposition directly reflects the central premise of the study: AI is expected to take over or support many routine project management tasks, while human project professionals will need to strengthen the competences required to guide, interpret, legitimize, and responsibly use AI-enabled project business.

3.4 Survey instrument

The survey instrument was developed as a structured questionnaire. It included closed questions, Likert-scale items, categorical questions, and selected open-ended questions. The purpose was to combine quantitative comparability with the opportunity to capture additional comments and interpretations from respondents.

The questionnaire consisted of several parts.

The first part collected demographic and professional background information. Respondents were asked about their generation, industry, role in the project business, level of experience, and the average share of their working hours spent in the project business. This information was necessary to describe the sample and to analyze differences between respondent groups.

The second part addressed current AI adoption and general attitudes toward AI in project business. Respondents were asked to assess their agreement with statements concerning their willingness to use AI more intensively, their expectations regarding performance improvements, the perceived ease or difficulty of using AI, and the degree to which organizational and technical prerequisites are already available. These items were aligned with the UTAUT constructs of performance expectancy, effort expectancy, and facilitating conditions.

The third part focused on the expected substitution of management tasks by AI. Respondents were asked to estimate the extent to which AI will substitute ma-

nagement tasks in project business in the years 2025, 2030, and 2035. This time--based design was intended to capture perceived dynamics of development. It also allowed the analysis of whether respondents expect linear, accelerated, or limited substitution over time.

The fourth part addressed competence requirements. Respondents were asked to assess the future relevance of competence clusters and selected sub-competences. The competence clusters covered governance, management, inter-/personal competences, creativity, change, data, context and digital technologies. Respondents were also asked whether they believe traditional project management competences will become less important as AI is increasingly applied in project business. This was important for distinguishing between replacement logic and transformation logic.

The fifth part focused on awareness, readiness, and the development of competence. Respondents were asked whether they are aware of changes in competence requirements, whether they expect these requirements to influence the selection, deployment, and development of personnel by 2030, and whether they are ready to develop their own competences. Further questions addressed preferred development formats and expectations for organizational support. Examples included learning-by-doing, online courses, peer learning, mentoring and coaching, AI-based learning platforms, personalized learning paths, intergenerational learning programs, innovation labs, events, and webinars.

The sixth part examined perceived barriers and enablers. Respondents were asked to identify obstacles to acquiring new competences and factors that could support competence development. Barriers included, for example, fear of job loss, lack of time, lack of organizational support, uncertainty about required competences, and insufficient access to learning opportunities. Enablers included leadership support, practical use cases, coaching, training, digital learning platforms, communities of practice, and transparent communication.

The seventh part included questions related to generational expectations and the changing work environment. These questions addressed expectations regarding technology use, development opportunities, flexibility, well-being, meaningful work, and organizational support. This part was designed to examine whether younger respondents, especially Generation Z, show different expectations concerning AI-enabled project business and competence development.

The questionnaire was reviewed for clarity, relevance, and consistency before distribution. Particular attention was given to the comprehensibility of competence items and the differentiation between role clusters. Since the target group consisted of project professionals, project management and project business terminology were used, but technical AI terminology was avoided where possible.

3.5 Population, sampling, and recruitment

The study's target population consisted of professionals involved in project business in Germany. This included project managers, program managers, portfolio managers, project owners, sponsors, steering committee members, PMO professionals, project controllers, consultants, and other practitioners involved in managing, steering, or supporting projects, programs, and portfolios.

A non-probability sampling approach was used. Respondents were recruited through two main channels: the newsletter of GPM Deutsche Gesellschaft für Projektmanagement e. V. and LinkedIn. These channels were selected because they provide access to a broad community of project professionals in Germany. The GPM newsletter reaches individuals with a professional interest in project management and related fields. LinkedIn was used to extend reach beyond formal association channels and to include project professionals active in digital professional networks.

Approximately 2,500 people were reached through these channels. In total, 300 responses were retained as valid for analysis. This corresponds to a valid respon-

se share of approximately 12 %. Given the professional specificity of the target group and the voluntary nature of the survey, this number of valid responses provides a solid empirical basis for exploratory and comparative analysis.

Data cleaning was conducted before analysis. Responses were checked for completeness, plausibility, and relevance to the target population. Incomplete questionnaires, obviously inconsistent entries, or responses outside the intended research population were excluded. After this cleaning process, the final sample consisted of 300 valid responses.

The sample includes respondents from different generations, industries, project roles, and experience levels. This heterogeneity supports the objective of analyzing AI-induced changes in competence across the project business rather than within a single sector or role group. However, the sampling approach does not allow claims of statistical representativeness for the entire population of project professionals in Germany. The results should therefore be interpreted as empirically grounded indications from a broad professional sample rather than as a fully representative population estimate.

3.6 Data collection

Data collection was conducted through an online questionnaire. The survey link was distributed via the GPM newsletter and via LinkedIn. Respondents participated voluntarily. The questionnaire was designed to be completed within a reasonable time frame to reduce dropout and response fatigue.

The online format was appropriate for several reasons. First, the target population is digitally accessible and professionally accustomed to online communication. Second, the topic itself concerns AI and digital transformation, making an online survey format suitable. Third, the use of an online questionnaire enabled efficient distribution across industries and regions. Fourth, it enabled automatic data export for statistical analysis.

The survey was conducted in the context of German industry and project business. Although the questionnaire addressed future developments through 2035, the data reflect respondents' perceptions at the time of data collection. This is important because AI adoption is a fast-moving phenomenon. The results should therefore be understood as a snapshot of professional expectations during a phase of rapid AI diffusion.

Participation was anonymous. No personal identification information was required for the core analysis. Respondents were informed about the purpose of the study and the use of the data for scientific analysis, professional publications, and dissemination in the project management community.

3.7 Operationalization of key constructs

The main constructs of the study were operationalized as items on a questionnaire.

AI adoption intention was operationalized using items that asked respondents whether they intend to use AI more intensively in their project business. This construct reflects behavioral intention in the UTAUT model.

Performance expectancy was operationalized through items asking whether respondents expect AI to improve performance in project business. This included expectations regarding efficiency, decision quality, transparency, risk management, and support for project management tasks.

Effort expectancy was operationalized through items asking whether the application of AI is perceived as easy or difficult and whether it requires significant effort. This construct was relevant because even high expected benefits may not lead to adoption if the perceived effort required for learning and application is high.

Facilitating conditions were operationalized using items assessing whether the organizational and technical prerequisites for AI use were available. This included access to tools, data, governance, training, and organizational support.

Social influence was captured indirectly through questions about organizational expectations, management support, and the perceived importance of AI for future project business. In future extensions of the study, this construct could be measured more explicitly using items that address peer expectations, leadership expectations, and professional norms.

Task substitution expectation was operationalized by asking respondents to estimate the extent to which AI will substitute management tasks in project business in 2025, 2030, and 2035. This construct was central to understanding the perceived speed and magnitude of role transformation.

The importance of competence was operationalized through assessments of competence clusters and sub-competences. Respondents evaluated the relevance of different competences for future project business. These assessments were used to identify competence areas expected to gain or lose relative importance.

Competence awareness was operationalized using items assessing whether respondents were aware of changing competence requirements. Competence readiness was operationalized using items assessing whether respondents were ready to develop their own competences to meet future requirements.

Competence development preferences were operationalized through items on learning formats and organizational support mechanisms. These included self-directed learning, learning-by-doing, online courses, mentoring, coaching, peer learning, AI-based learning platforms, personalized learning paths, innovation labs, and intergenerational learning. Barriers and enablers were operationalized through predefined response categories and, where applicable, open-ended additions. Barriers were defined as factors that hinder the acquisition of competence, while enablers were defined as factors that support competence development.

Generational expectations were operationalized through the respondent's generation and through items concerning expectations toward employers, technology use, professional development, work environment, and well-being.

3.8 Data analysis

The analysis followed a quantitative, descriptive, and comparative approach. First, descriptive statistics were calculated to summarize the sample characteristics and the distribution of responses. This included frequencies, percentages, means, and standard deviations, depending on the level of measurement.

Second, descriptive analyses were conducted on the study's main constructs. These included AI adoption intention, performance expectancy, effort expectancy, facilitating conditions, expected task substitution, perceived changes in competence, readiness for competence development, preferred learning formats, barriers, and enablers.

Third, comparative analyses were used to examine differences between respondent groups. Depending on the measurement level and distribution of variables, comparisons were made across role clusters, generations, industries, and experience levels. Particular attention was given to differences between management, steering, and support roles, as these groups may experience AI--induced change differently.

Fourth, time-horizon analyses were used to examine how respondents expect AI substitution and competence requirements to develop between 2025, 2030, and 2035. These analyses were central to understanding whether respondents perceive AI-induced change as gradual, accelerating or already imminent.

Fifth, the results were interpreted in relation to the theoretical model. UTAUT provided the basis for analyzing how perceived usefulness, perceived effort, social influence, and facilitating conditions relate to AI adoption and competence development. The dynamic capability perspective supported the interpretation of organizational implications, especially the need to sense competence gaps, seize AI opportunities through training and governance, and reconfigure roles, processes, and competence systems.

In addition to quantitative analysis, open-ended comments were reviewed to identify recurring themes, illustrative statements, and additional explanations. These qualitative inputs were not treated as a separate qualitative study, but as complementary material supporting the interpretation of quantitative findings.

3.9 Reliability, validity, and quality considerations

Several measures were taken to support the quality of the research design. Content validity was addressed by deriving the survey items from established theoretical concepts, especially UTAUT, and from recognized competence frameworks in project management. The competence clusters were developed based on traditional project management competences and emerging digital, AI-related, and human-centered competence requirements.

Construct validity was supported by aligning questionnaire items with theoretical constructs, including performance expectancy, effort expectancy, facilitating conditions, behavioral intention, and competence readiness. However, because the study addresses a fast-developing field, the operationalization should be understood as an applied and context-specific adaptation rather than a fully standardized measurement model.

Face validity was supported through the professional relevance of the questionnaire items. The target group consisted of project professionals, and the items were formulated in language familiar to this community. The distinction among role clusters, time horizons, and competence areas was designed to reflect the actual structures of project business.

Reliability was addressed through structured, consistent response formats. When multiple items are used to represent related constructs, internal consistency can be assessed using appropriate statistical measures. Because the survey contains both established constructs and newly developed competence-related items, reliability analysis is particularly relevant for any composite scales used in further analysis.

External validity is limited by the sampling approach. Since the sample was recruited through the GPM newsletter and LinkedIn, it may overrepresent respondents who are professionally engaged, digitally connected, and interested in project management development. It may also overrepresent individuals with a stronger awareness of AI and competence topics. Therefore, generalizations to all project professionals in Germany should be made with caution. Nevertheless, the sample size of 300 valid responses and the professional relevance of the recruitment channels provide a strong basis for generating insights into current perceptions and expectations in the German project management community.

Common method bias is a potential limitation because the data are based on self-reported perceptions collected through a single survey instrument. This is a common issue in studies on expectations, attitudes, and perceived competences. To reduce this risk, the questionnaire included various item types, covered several constructs, and used role, generation, and industry variables for comparative analysis.

3.10 Ethical considerations

The study adhered to the basic principles of ethical empirical research. Participation was voluntary. Respondents were informed about the purpose of the study and the intended use of the results. The survey did not require the collection of sensitive personal data beyond basic demographic and professional categorization. Data were analyzed in aggregated form.

Given the topic of AI and competence change, ethical sensitivity was particularly important. Questions on task substitution and future competences may raise concerns about job security, employability, and professional identity. Therefore, the study did not frame AI as a simple replacement mechanism but as a transformation of the project business that requires new opportunities for competence development. This perspective is important because empirical research on AI adoption should not contribute to deterministic fear narratives but should help organizations and individuals understand and shape the transition responsibly.

3.11 Methodological limitations

The study has several limitations. First, it is based on a cross-sectional survey. It captures perceptions and expectations at one point in time, while AI adoption is evolving rapidly. Longitudinal research is needed to examine how expectations and competence requirements actually change over time.

Second, the study relies on self-reported data. Respondents assessed their own awareness, readiness, expectations, and perceptions. Such assessments may be influenced by optimism, skepticism, professional identity, current organizational context, or media discourse on AI.

Third, the sample is not statistically representative of all project professionals in Germany. Recruitment through the GPM newsletter and LinkedIn provided access to a relevant professional audience, but it may have led to selection bias. Individuals who are more interested in AI, project management associations, or professional development may have been more likely to respond.

Fourth, the study examines expected future competence requirements rather than objectively measured future outcomes. Forecasts for 2030 and 2035 necessarily involve uncertainty. However, such expectation data are valuable because they influence current decisions on training, role development, organizational design, and professional standards.

Fifth, the competence clusters used in the survey represent a structured but evolving framework. As AI technologies and project practices continue to develop, future research may refine, expand, or empirically validate these competence clusters.

3.12 Summary

The methodology of this study was designed to capture how project professionals in Germany perceive future competence requirements in AI-enabled project

business. A structured online survey was distributed via the GPM newsletter and LinkedIn. Approximately 2,500 people were reached, and after data cleaning, 300 valid responses were included in the analysis.

The study builds on UTAUT and the dynamic capability perspective. It differentiates among management, steering, and support roles, considers time horizons from 2025 to 2035, accounts for generational differences, and uses a competence framework covering governance, management, interpersonal, creativity, change, data, context, and digital technology competences.

The chosen methodology enables the study to analyze the perceived speed and significance of AI-induced competence change, individuals' readiness to develop new competences, and the organizational conditions required to support this development. While the study has limitations regarding representativeness and self-reported data, it provides an empirically grounded basis for discussing the future of project business, the changing role of project professionals, and the implications for organizations, PMOs, and professional associations.

4. RESULTS

4.1 Overview

This chapter presents the empirical results of the study on future competences for project business in times of artificial intelligence. The results are structured in six sections. First, the sample is described by generation, industry, role, experience, and the share of working time spent on project work. Second, the respondents' general attitudes and perceptions toward AI are presented. Third, the expected substitution of management tasks by AI is analyzed across the three time horizons 2025, 2030, and 2035. Fourth, the findings on competence requirements, competence awareness, and readiness for competence development are reported. Fifth, barriers and enablers for acquiring new competences are presented. Sixth, the inferential statistical results are summarised, with particular attention to the comparison between Generation Z and older generations and to the UTAUT-based regression models predicting the intention to use AI in project management.

The results show a clear pattern: respondents are strongly oriented toward increased AI use in project business and expect AI to improve project-business performance. At the same time, they do not assume that traditional project management competences will simply become irrelevant. Rather, the results indicate a shift in competence: routine-oriented management tasks are expected to be increasingly replaced or supported by AI, while competence requirements related to judgment, orchestration, learning, leadership, governance, and human-AI collaboration are expected to become more important.

4.2 Sample characteristics

The final survey dataset included 300 valid responses. The sample consisted mainly of experienced project professionals, which strengthens the relevance of the findings for the project business community. Respondents represented different generations, industries, and role clusters.

In terms of generation, the largest group was Generation X, representing 45% of the sample. Generation Y accounted for 37%, Baby Boomers for 10%, and Generation Z for 8%. The relatively small share of Generation Z respondents needs to be considered when interpreting generational comparisons. Although Generation Z is highly relevant for the future of project business, the statistical power for this subgroup is limited.

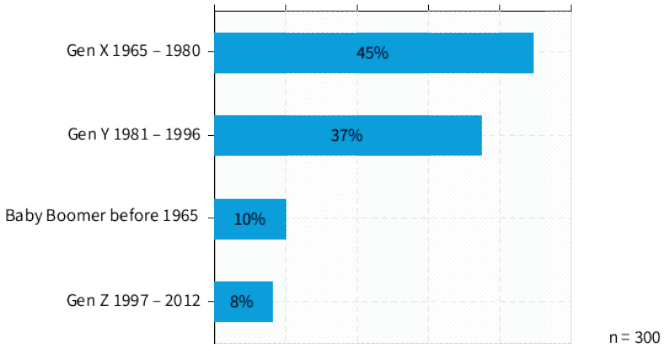

Figure 4.1: Generation distribution of respondents, n = 300 (Source: Authors' own study. This applies to all subsequent figures and tables.)

The industry distribution shows that the sample is strongly represented by manufacturing, which accounts for 35% of respondents. Construction follows with 16%, information and communication with 13%, other service providers with 12%, corporate service providers with 8%, public service providers with 8%, and finance and insurance with 7%. Retail, transport, and catering account for 2%, while real estate and hospitality, as well as agriculture, forestry, and fishing, are hardly represented in the sample. The dominance of manufacturing and construction reflects the strong relevance of project business in industrial, engineering, and infrastructure-related contexts.

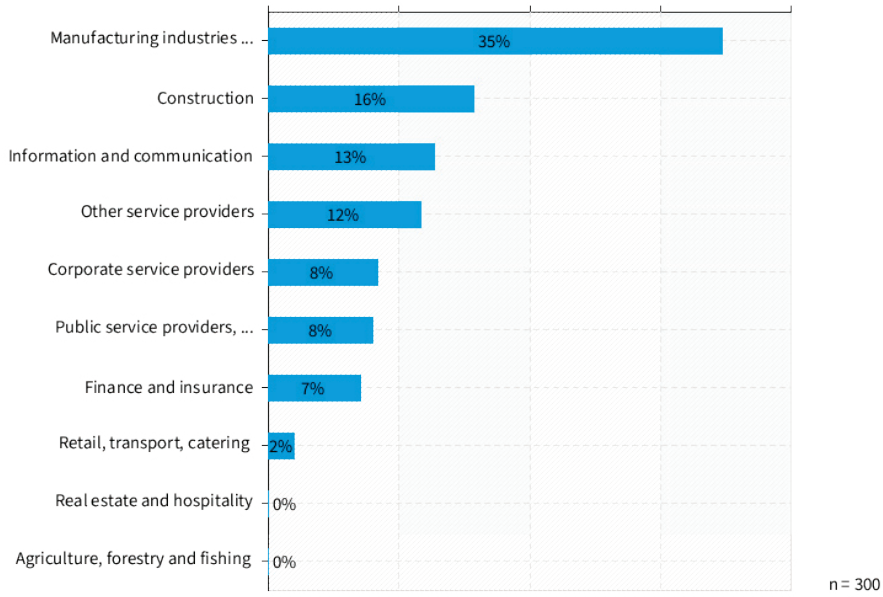

Figure 4.2: Industry distribution of respondents, n = 300

The role distribution confirms that the sample mainly consists of people directly involved in the project business. Management roles, such as project managers and program managers, account for 58% of respondents. Support roles, including project management offices and project consultants, account for 26%. Steering roles, such as portfolio directors, project owners, and steering committee members, account for 16%. This role structure provides a broad view across operational management, governance, and support perspectives.

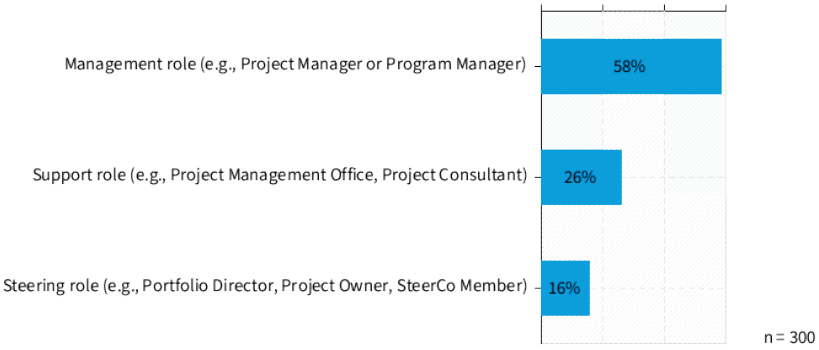

Figure 4.3: Role distribution in project business, n = 300

The respondents are also highly experienced. The average number of years of experience in project business is 18.3 years. The most frequent experience group is 16–20 years, with 66 respondents. Other substantial groups include 6–10 years (46 respondents), 0–5 years (41 respondents), 11–15 years (40 respondents), and 26–30 years (39 respondents). The sample, therefore, reflects a mature project management community with significant professional exposure to project business.

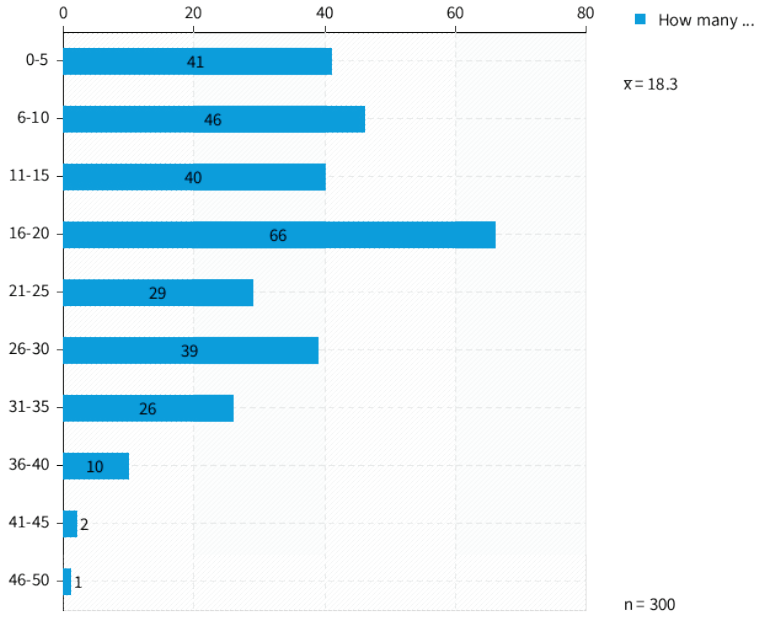

Figure 4.4: Years of experience in project business, n = 300

The average share of working hours spent in project business is 72.2%. This is another indicator of the professional relevance of the sample. A large proportion of respondents spend most of their working time on project-related activities: 87 respondents report 91–100%, 41 report 81–90%, and 55 report 71–80%. Thus, the findings are based on respondents for whom project business is not a marginal activity, but a substantial part of their professional work.

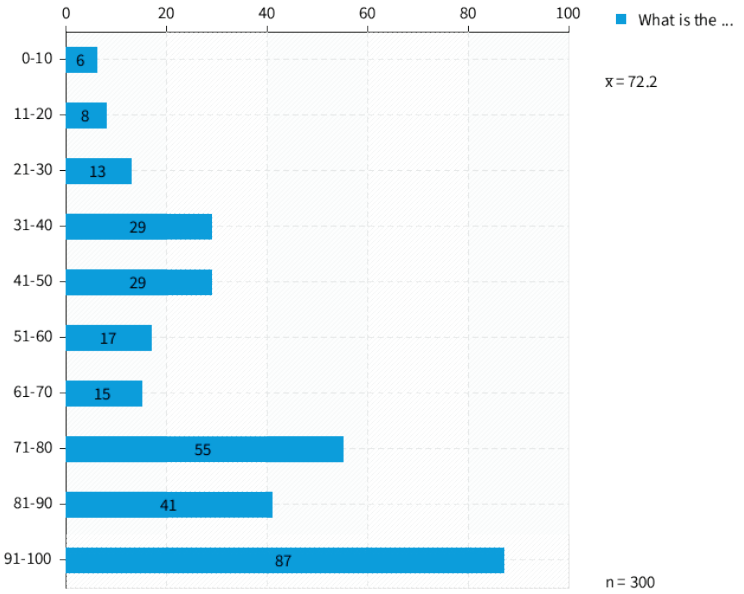

Figure 4.5: Average share of working hours in project business, n = 300

4.3 General AI-related attitudes and perceived adoption conditions

The respondents show a high intention to use AI more intensively in project management. On a seven-point scale, the statement “I intend to apply even more AI to PM in the future” received a mean value of 6.0. This indicates a strong behavioral intention to increase AI use. The expectation that AI will improve the performance of the project business is similarly high, with a mean value of 5.9. These results suggest that respondents do not view AI merely as an experimental technology but as a relevant lever for project and business performance.

Respondents also report a moderate to high level of knowledge about AI applications in project management, with a mean value of 5.2. The current application of AI in project management reaches a mean value of 4.9. This indicates that AI is already being used, but not yet at the level expected for the future. The gap between intended future use and current use indicates development potential: respondents want to use more AI, but actual use is still catching up.

The perceived social support for AI in project business is also moderate to positive. The statement that colleagues and leaders support the application of AI in project management received a mean value of 4.9. By contrast, the organizational and technical prerequisites for AI applications received a lower mean value of 4.3. The lowest value is associated with the statement that applying AI in project management is easy and requires little effort, with a mean of 3.8. This shows a clear pattern: willingness to use AI and expected performance benefits are high, but perceived ease of use and organizational readiness are considerably lower.

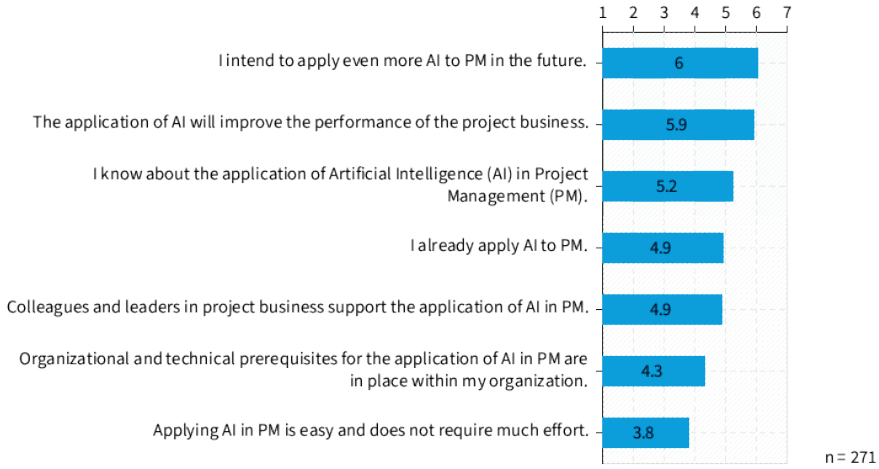

Figure 4.6: Agreement with AI-related statements and UTAUT variables, n = 271

This finding is important for interpreting AI adoption in project business. The main barrier does not appear to be a lack of interest or a lack of perceived usefulness. Rather, the results point to implementation and capability issues: organizations need to provide better prerequisites, clearer guidance, technical integration, learning opportunities, and practical support for AI use.

4.4 Expected substitution of management tasks by AI

One of the central questions of the study was the extent to which respondents expected AI to substitute for management tasks in project-based businesses. This question was asked for three time horizons: 2025, 2030, and 2035.

For 2025, the expected average substitution level is 22.2%. The distribution is concentrated in the lower ranges. Most respondents estimate that AI currently substitutes between 10% and 27% of management tasks. Specifically, 87 respondents selected the range 10–18%, 63 selected 19–27%, and 44 selected 0–9%. Only a small number of respondents selected high substitution ranges above 55%. This suggests that, at the current stage, AI is perceived as relevant but not yet dominant in the substitution of management tasks.

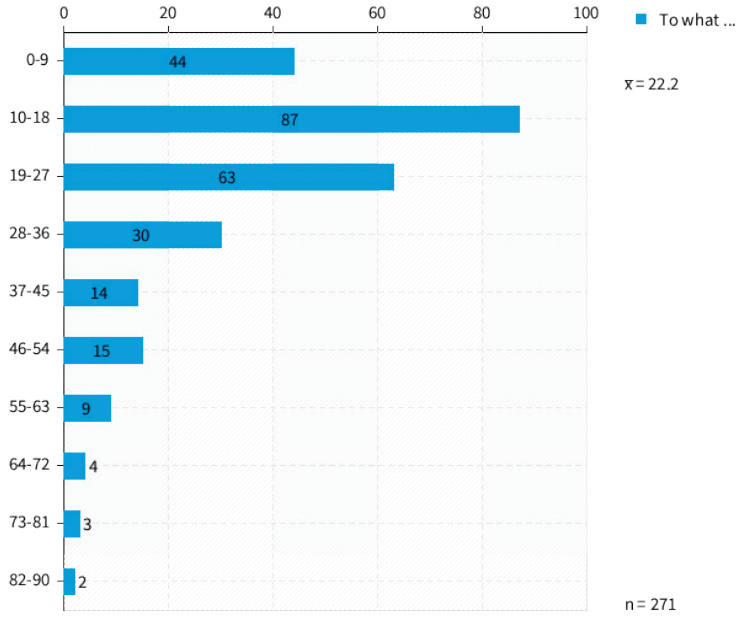

Figure 4.7a: Expected AI substitution of management tasks in 2025, n = 271

For 2030, the expected average substitution level increases sharply to 51.6%. The distribution shifts toward the middle and upper ranges. The most frequent category is 41–50%, selected by 53 respondents. Further substantial groups are 31–40% and 71–80%, each with 39 respondents; 21–30% with 36 respondents; 51–60% with 34 respondents; and 61–70% with 33 respondents. This indicates that respondents expect a major transformation of management work in project business by 2030.

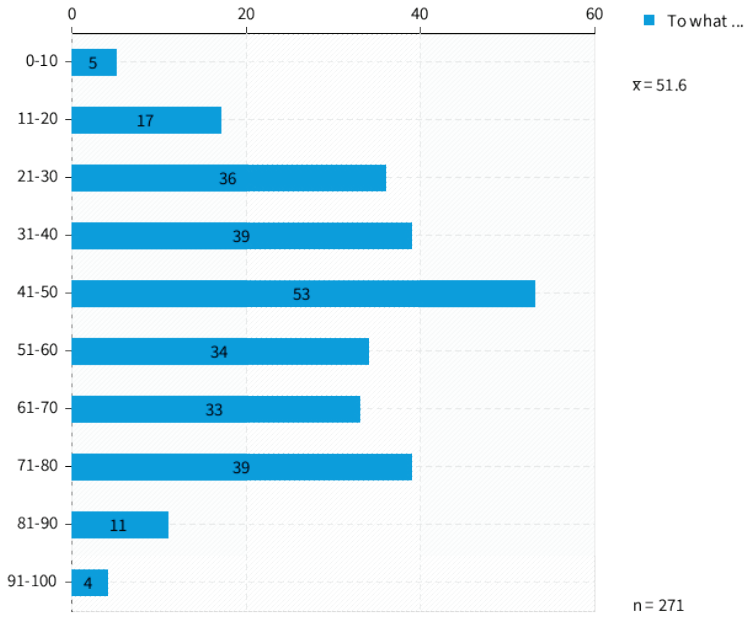

Figure 4.7b: Expected AI substitution of management tasks in 2030, n = 271

For 2035, the expected average substitution level rises further to 63.5%. The distribution is now concentrated in higher substitution ranges. The largest groups are 71–80% with 49 respondents, 81–90% with 47 respondents, 61–70% with 41 respondents, and 41–50% with 40 respondents. Only a small number of respondents expect very low substitution by 2035. This result confirms the expectation of a significant and accelerating shift in the division of labor between AI and human project professionals.

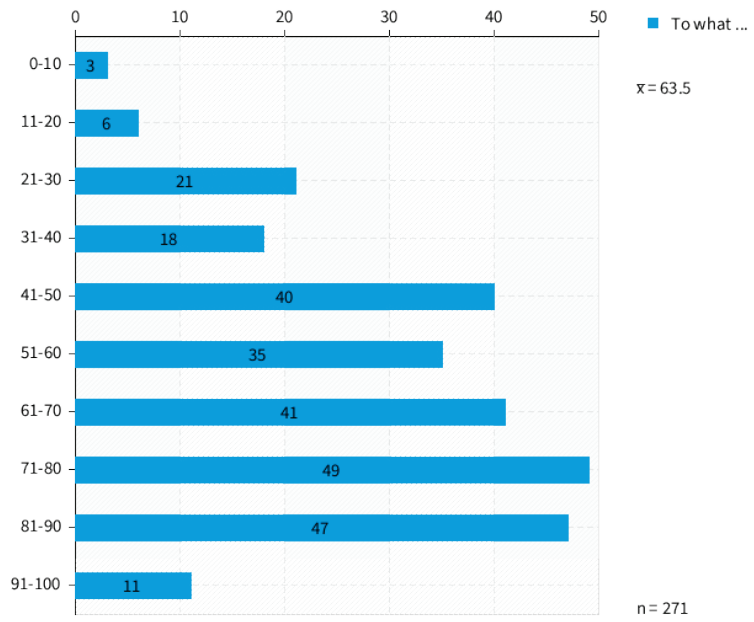

Figure 4.7c here: Expected AI substitution of management tasks in 2035, n = 271

Taken together, these results show that respondents expect AI to move from partial support in the current period to substantial substitution of management tasks within the next decade. However, this should not be interpreted as a complete replacement of project managers. Rather, the data indicate that routine, repetitive, and information-processing tasks are expected to be increasingly handled by AI, while the human role will need to shift toward interpretation, judgment, leadership, governance, and orchestration.

4.5 Competence requirements and awareness of change

The findings on competence requirements show a differentiated picture. Respondents do not broadly agree with the statement that traditional project management competences will become less important as AI is increasingly applied. Only 27% agree or slightly agree with this statement, while 14% are neutral and 59% disagree or slightly disagree. This is an important finding because it challenges

a simple substitution narrative. Respondents do not expect AI to make project management competence irrelevant.

At the same time, respondents are highly aware that competence requirements are changing. 83% agree or slightly agree that they are aware of changes in competence requirements for project business. Only 9% are neutral, and 8% disagree or slightly disagree. This indicates that the professional community clearly perceives the shift in competence.

The expected organizational impact is even stronger. 89% of respondents agree or slightly agree that, by 2030 at the latest, future competence requirements will significantly impact the selection, deployment, and development of personnel in project business. Only 7% are neutral, and 4% disagree or slightly disagree. This finding is highly relevant for organizations, PMOs, HR functions, and professional associations. It suggests that competence requirements are not only changing at the individual level, but will also affect recruitment, role assignment, career development, training systems, and certification logic.

The overall interpretation is that traditional project management competences remain relevant, but their application context changes. Competences related to planning, monitoring, and reporting will increasingly be AI-supported. However, this does not reduce the need for project management competence. Instead, it increases the need for higher-order competences: critical judgement, validation of AI outputs, contextual interpretation, stakeholder alignment, ethical reasoning and leadership in human-AI collaboration.

4.6 Readiness for competence development

The results show a very high readiness among respondents to develop their competences. 91% agree or slightly agree with the statement “I am ready to develop my competence to cope with future requirements.” Only 6% are neutral, and 5% disagree or slightly disagree. This result is encouraging because the expected shift in competence can only be managed if individuals are willing to learn and adapt.

Respondents also indicate clear preferences for competence development formats. The highest-rated format is learning-by-doing, with a mean value of 6.4 on a seven-point scale. This confirms that practical application is perceived as the most effective way to develop future competences in AI-enabled project business. Online courses and cross-generational exchange both receive a mean value of 5.7, followed by peer learning with 5.6. Event participation and webinars each receive 5.4. Podcasts receive a lower, but still positive, mean value of 4.7.

Figure 4.8: Preferred individual development formats, n = 181

This result suggests that future competence development should not rely primarily on traditional classroom training. Instead, it should be embedded in practice and supported by digital learning, peer exchange, and intergenerational learning. Learning-by-doing appears particularly important because AI use is context-dependent: project professionals need to experiment with real use cases, interpret AI-generated outputs, learn from mistakes, and develop judgment through repeated application.

Respondents also expressed expectations toward their organizations. The most strongly expected organizational support measure is mentoring and coaching programs, with a mean value of 5.8. AI-based learning platforms follow closely with 5.7. Personalized micro-learning journeys receive 5.5. Cross-generational le-

arning programs and internal innovation labs each receive 5.4. Hackathons and challenge sprints receive 4.7, while virtual reality training receives 4.6.

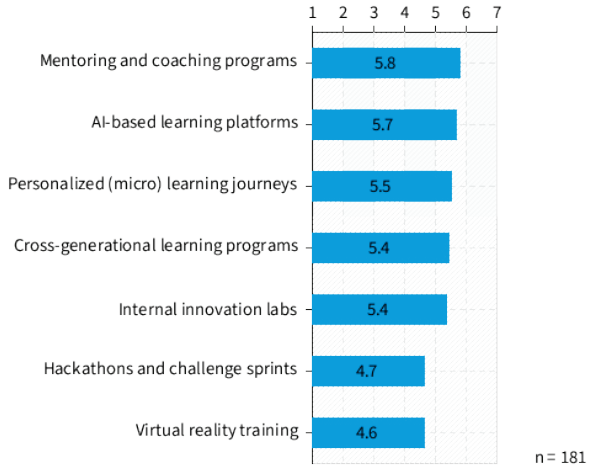

Figure 4.9: Expected organizational support for competence development, n = 181

These results show that respondents expect organizations to provide structured and personalized learning environments. Mentoring and coaching are particularly relevant because AI adoption is not only a technical learning issue. It also requires reflection, confidence building, role clarification, and the development of professional judgment. AI-based learning platforms and personalized learning journeys are also relevant because competence development will need to be scalable, adaptive, and continuous.

4.7 Barriers to competence development

The survey results identify several barriers to acquiring new competences in AI-enabled project business. The highest-rated barrier is fear of job displacement, with a mean value of 4.9. This finding is significant because it shows that the competence transition is not merely a rational learning challenge. It is also an emotional and identity-related challenge. If project professionals fear that AI will replace them, their willingness to engage openly with AI-enabled competence development may

be reduced. Silo thinking and poor knowledge sharing in the organization are the second strongest barriers, with a mean value of 4.4. This points to an organizational challenge. AI competence development requires access to shared experiences, cross-functional collaboration, data exchange, and communities of practice. If knowledge remains fragmented, competence development will be slower and less effective. The lack of organizational support for the change and the lack of opportunities for practical experimentation both receive a mean value of 4.1. These results reinforce the importance of organizational enabling conditions. Competence development requires not only individual motivation but also time, infrastructure, leadership support, safe spaces for experimentation, and access to relevant AI tools.

Lower-rated but still relevant barriers include lack of awareness of the change and uncertainty about future competence requirements, each with a mean value of 3.6, as well as resistance to change, with a mean value of 3.5. These results indicate that uncertainty and resistance exist, but they are not the dominant barriers. The more pressing issues are fear of displacement, organizational silos, and lack of practical support.

Figure 4.10a: Main barriers for acquiring new competences, n = 175

These findings have direct implications for change management. Organizations should not frame AI adoption only as an efficiency initiative. They need to address

fears, clarify future role expectations, and provide visible development pathways. Otherwise, AI adoption may be slowed by anxiety, fragmented knowledge, and a lack of experimentation.

4.8 Enablers of competence development

The strongest enabler identified in the survey is psychological safety, with a mean value of 4.9. This result is consistent with the finding that fear of job displacement is the strongest barrier. If employees are expected to learn new AI-related competences, they need an environment in which they can ask questions, experiment, make mistakes, express concerns, and discuss implications for their roles without fear of negative consequences. Strategic workforce planning is the second-highest-rated enabler, with a mean value of 4.7. This indicates that competence development needs to be linked to future roles and staffing strategies. AI-induced changes in competence cannot be managed through isolated training measures. Organizations need to anticipate future roles, identify competence gaps, and align recruitment, development, and deployment decisions accordingly. Access to innovative learning formats and a clear future competence framework both receive a mean value of 4.6. This suggests that respondents want both flexibility in learning and clarity about what needs to be learned. Innovative formats alone are insufficient if competence expectations remain vague. Conversely, a competence framework alone is insufficient if learning opportunities are not attractive, practical, or accessible. Continuous learning culture, time for learning and experimentation, and strong leadership support receive lower values. This may indicate that these factors are not yet sufficiently experienced in practice or that respondents perceive them as less present in their current environment. From an organizational perspective, this result should be interpreted with caution: even if these enablers receive lower ratings, they remain important prerequisites for sustainable competence development.

Figure 4.10b: Enablers for acquiring new competences, n = 173

Overall, the barrier and enabler results reach the same conclusion: competence development in AI-enabled project business is not solely a matter of providing training. It requires psychological safety, organizational learning structures, opportunities for experimentation, strategic workforce planning, and a clear competence framework.

4.9 Expectations regarding AI, role development, and well--being

The survey also included broader statements on expectations regarding AI, project business, Generation Z, and well-being. The strongest agreement is with the statement that organizations that apply AI in project management more quickly and develop the necessary competences will have a competitive advantage in the future. This statement receives a mean value of 5.9. This is one of the clearest results of the study and indicates that respondents see AI competence not merely as an operational improvement, but as a strategic differentiator. Respondents are also moderately optimistic about AI-driven changes and the opportunities these will bring for their career prospects. This statement receives a mean value of 5.4. This finding is important because it suggests that AI is

not only associated with fear. Many respondents also see career opportunities in the transformation.

The statement that the number of projects will continue to grow because the use of AI in project management significantly reduces implementation effort receives a mean value of 4.7. This suggests that respondents expect AI not necessarily to reduce the relevance of project business, but potentially to increase project activity by lowering the effort required to initiate and execute projects.

Several statements receive values around 4.5. Respondents indicate that since AI tools were introduced into their organization's project business, they feel they are expected to deliver more in less time. They also moderately agree that the growing use of AI in project management meets Generation Z's expectations for the work environment. In addition, respondents report that AI has increased their sense of competence in project-related work and that its use in projects has increased their autonomy.

The statement that the well-being of staff in project business is likely to become a greater priority, given the increasing use of AI in project management, receives a mean value of 4.3. The statement that the number of people in the project business will significantly decrease due to AI also received a score of 4.3. These two results reveal a tension: AI may increase efficiency and reduce some staffing needs, but it also raises questions of workload, well-being, role security, and sustainable work design.

The statement "I feel clear about how my role is expected to evolve as AI is adopted in projects" receives a mean value of 4.0. This is lower than the values for expected performance benefits and competitive advantage. It suggests that role evolution is not yet sufficiently clear to many respondents. Organizations may therefore need to communicate more explicitly how project-related roles will change as AI adoption increases.

The lowest-rated statement is that the use of AI has reduced trust and the sense of relatedness within the team, with a mean value of 3.4. This suggests that

respondents do not strongly experience AI as currently damaging team trust or relatedness. However, the issue remains relevant, especially if AI use becomes more deeply embedded in monitoring, reporting, and decision-making.

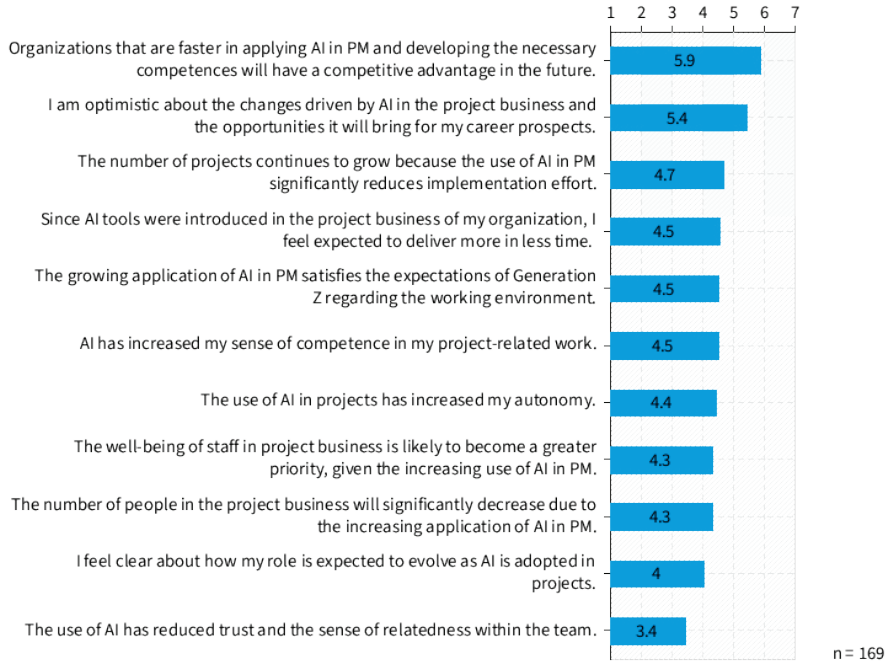

Figure 4.11: Expectations regarding AI, role development, Gen Z, and well-being, n = 169

Taken together, these findings show that AI is associated with both strategic opportunity and organizational tension. Respondents see competitive advantage, career opportunities, and increased competence, but they also perceive pressure to deliver more, uncertainty about role evolution, and potential implications for staffing and well-being.

4.10 Role-specific competence rankings for Management, Steering, and Support roles

This section presents the role-specific competence rankings for Management, Steering, and Support roles across the three time horizons 2025, 2030, and 2035.

Respondents were asked to rank eight competence clusters by importance for the respective role cluster and time horizon. The figures report average ranking scores on a scale from 1 to 8. The following interpretation aligns with the ranking order shown in the figures, with higher values indicating greater relative importance.

The results show that the expected competence shift is not uniform across roles. Management and Steering roles are initially dominated by Digital and Data competences, whereas Support roles show a stronger emphasis on Governance competences. Over time, Management competences regain relevance, especially for Steering and Support roles, suggesting that AI does not eliminate management competence but changes its application context. The role-specific findings therefore confirm a central assumption of the study: AI adoption in project business leads to a reconfiguration of competence profiles rather than to a simple replacement of traditional project management competences.

4.10.1 Competence rankings for Management roles

For **Management roles in 2025**, Digital competences are ranked highest, with an average score of 6.4, followed by Data competences with 6.0. Context competences follow with 4.7, and Change competences with 4.6. Creativity competences reach 4.2. Governance, Management, and Inter-/Personal competences each score 3.4.

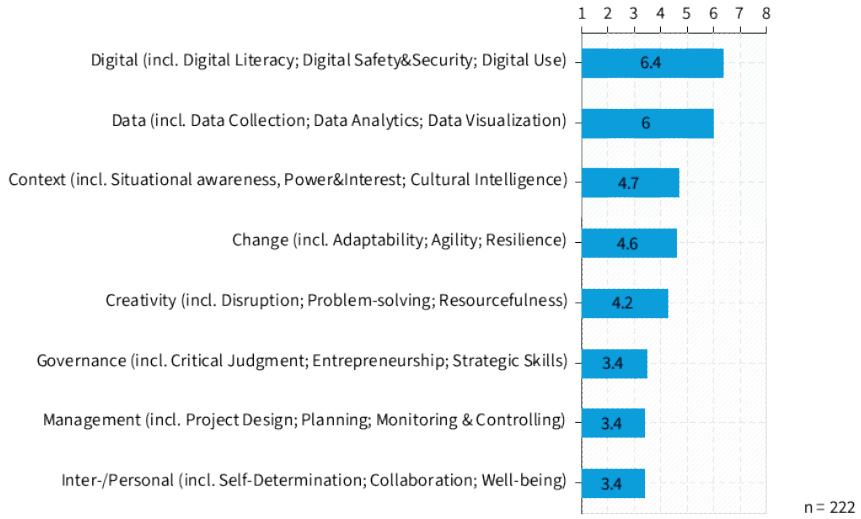

Figure 4.12a Importance of competence clusters for Management roles in 2025, n = 222

This result suggests that, in the current phase of AI adoption, Management roles are expected to develop a strong digital and data-related competence base. The emphasis is clearly on understanding, applying, and using digital technologies and data in project business. Traditional Management competences, such as project design, planning, monitoring, and controlling, are ranked lower in 2025. This does not necessarily mean that they are unimportant, but it indicates that respondents perceive the immediate competence gap for Management roles to be primarily digital and data-related.

For **Management roles in 2030**, Digital and Data competences remain the highest-ranked clusters, each with an average score of 5.5. Context competences follow with 4.8. Management and Change competences both reach 4.5, Creativity competences reach 4.3, Governance competences reach 3.5, and Inter-/Personal competences reach 3.4.

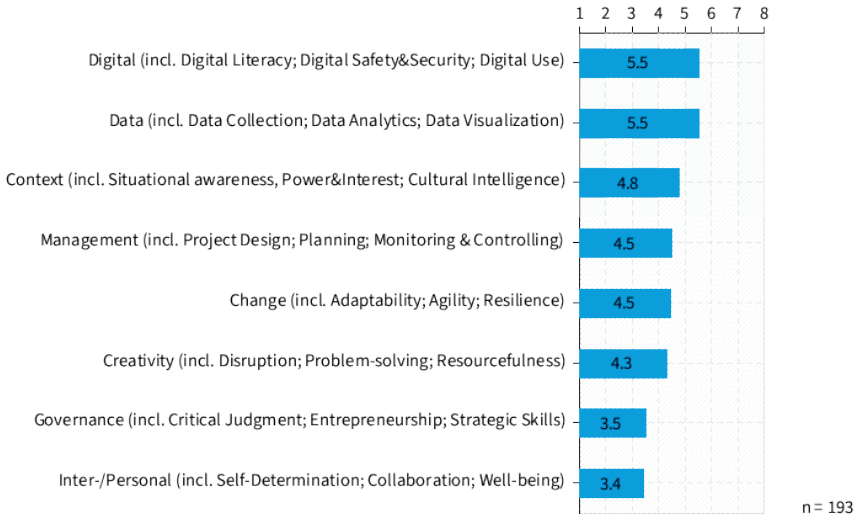

Figure 4.12b: Importance of competence clusters for Management roles in 2030, n = 193

Compared with 2025, Digital and Data competences remain important but decrease in relative dominance. At the same time, Management competences increase from 3.4 to 4.5. This indicates that respondents expect Management roles to move from initial digital enablement toward a more integrated competence profile by 2030. The role is no longer only about acquiring digital and data capabilities, but increasingly about combining these capabilities with project design, planning, monitoring, controlling, and change-oriented competences.

For **Management roles in 2035**, Data and Digital competences are again ranked highest, each with an average score of 5.2. Management competences rise further to 4.8. Context competences reach 4.6, Change competences 4.5, Creativity competences 4.3, Governance competences 3.8, and Inter-/Personal competences 3.5.

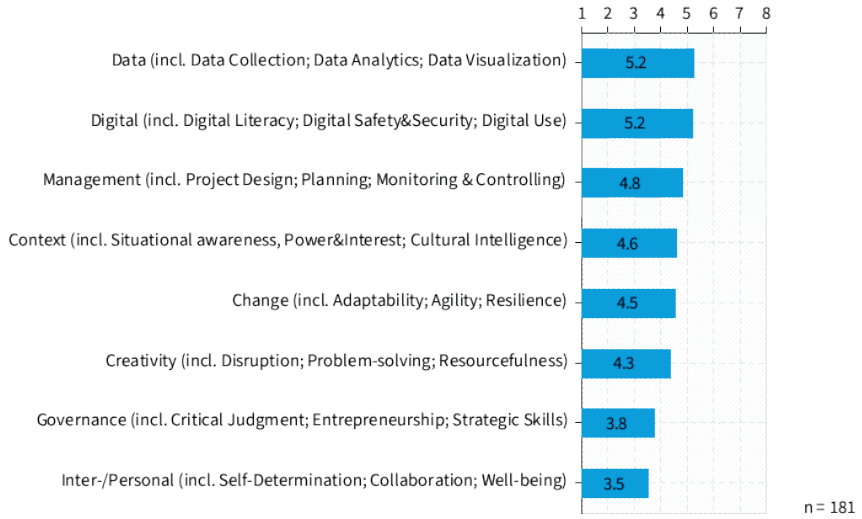

Figure 4.12c: Importance of competence clusters for Management roles in 2035, n = 181

The 2035 results show a more balanced competence profile for Management roles. Digital and Data competences remain important, but their relative dominance is weaker than in 2025. Management competences become more prominent, suggesting that AI-supported project business still requires strong project management capability. The likely interpretation is that traditional Management competences are not replaced by AI, but are transformed: project managers may spend less time on manual planning, reporting, and controlling, but more time interpreting AI-generated outputs, validating recommendations, coordinating stakeholders, and making context-sensitive decisions.

4.10.2 Competence rankings for Steering roles

For **Steering roles in 2025**, Digital competences are ranked highest, with an average score of 6.6. Data competences follow with 5.8. Change competences reach 4.7, Creativity competences 4.6, Management competences 4.1, Context and Inter-/Personal competences each 4.0, and Governance competences 2.2.

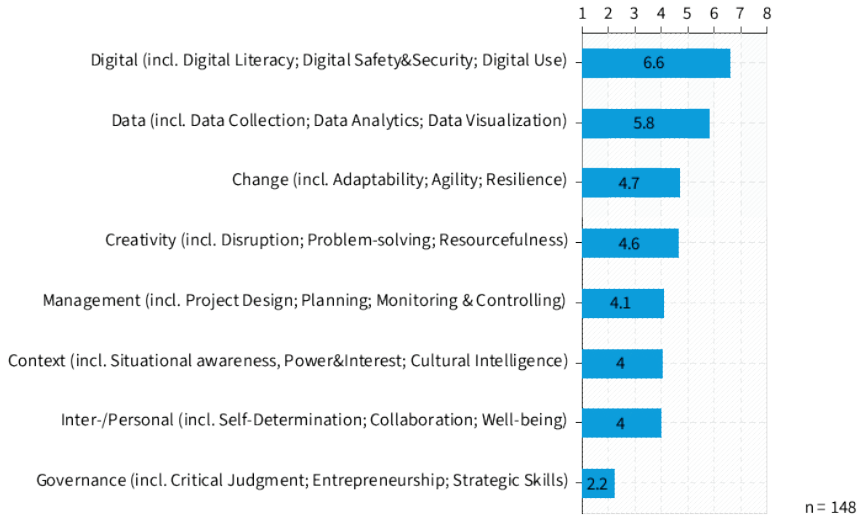

Figure 4.13a: Importance of competence clusters for Steering roles in 2025, n = 148

This result is noteworthy because Steering roles are usually associated with governance, sponsorship, strategic decision-making, and portfolio-level accountability. Nevertheless, Governance competences received the lowest score in 2025, while Digital and Data competences dominate. One possible interpretation is that respondents perceive the immediate challenge for Steering roles not as general governance capability, but as the ability to understand the implications of digital technologies and data-driven decision-making. In other words, Steering roles may already be assumed to possess governance authority, while the new competence gap lies in digital and data literacy.

For **Steering roles in 2030**, Digital competences remain the highest with 5.5, closely followed by Data competences with 5.4. Management competences rise to 5.0, Creativity competences reach 4.8, Change competences 4.6, Context competences 4.2, Inter-/Personal competences 4.0, and Governance competences 2.4.

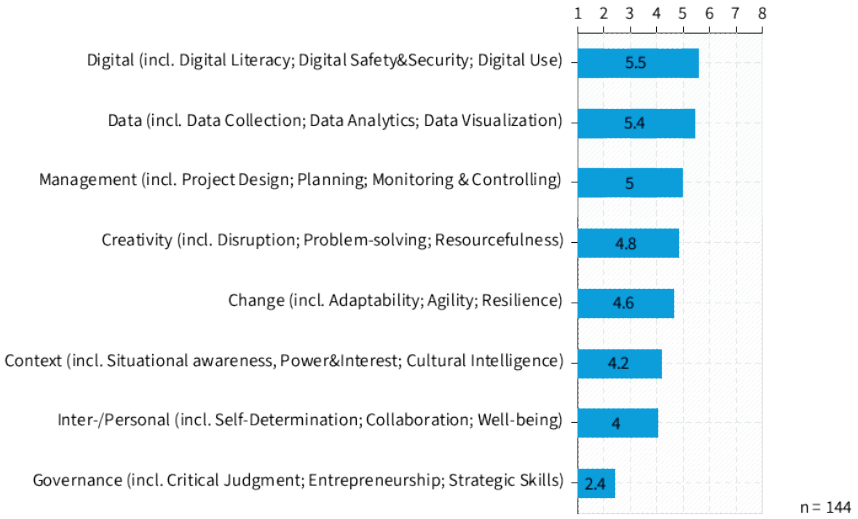

Figure 4.13b: Importance of competence clusters for Steering roles in 2030, n = 144

The 2030 results indicate that Steering roles are expected to become more actively involved in management-related decisions. Management competences increase from 4.1 in 2025 to 5.0 in 2030. This may reflect the expectation that AI-supported transparency, predictive analytics, and portfolio intelligence will make Steering roles more directly involved in prioritization, resource allocation, strategic trade--offs, and intervention decisions. Creativity also becomes more important, suggesting that Steering roles will need to evaluate innovative AI-enabled options and respond to increasingly dynamic project environments.

For **Steering roles in 2035**, Data and Management competences are ranked highest, each with 5.3. Digital competences follow with 5.1, Creativity competences with 5.0, Change competences with 4.6, Context competences with 4.2, Inter-/Personal competences with 4.0, and Governance competences with 2.6.

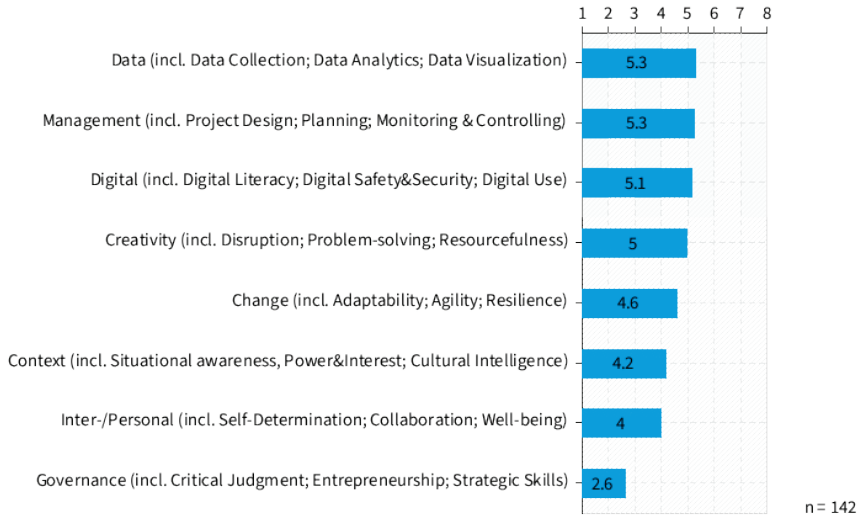

Figure 4.13c: Importance of competence clusters for Steering roles in 2035, n = 142

The 2035 pattern is particularly interesting. Data and Management competences become equally important in Steering roles, while Digital competences fall slightly behind. This suggests that by 2035, AI and digital technologies may have become more embedded in the project-business environment.

The differentiating competence for Steering roles may then no longer be general digital awareness but the ability to use data and AI-enabled insights to inform management decisions. Steering roles will need to interpret portfolio information, assess scenarios, decide on priorities, and guide strategic adaptation. The consistently low score of Governance competences should be explored further in the discussion chapter, as it may indicate either a measurement issue, an implicit assumption that governance is already part of Steering roles, or an underestimation of AI governance as a future steering competence.

4.10.3 Competence rankings for Support roles

For **Support roles in 2025**, Governance competences are ranked highest with 5.2. Digital competences follow with 4.8, Change competences with 4.7, and Context

competences with 4.6. Inter-/Personal, Creativity, and Management competences each score 4.3. Data competences are ranked lowest with 3.8.

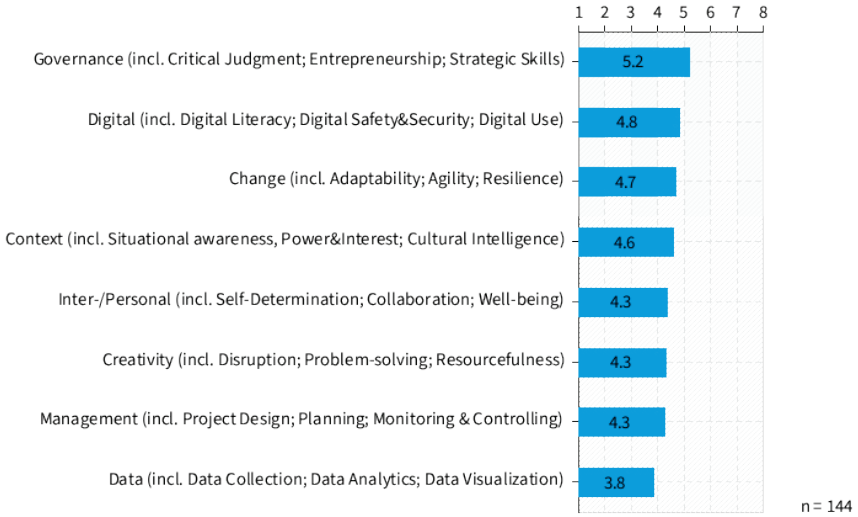

Figure 4.14a: Importance of competence clusters for Support roles in 2025, n = 144

This result differs clearly from the Management and Steering role profiles. For Support roles, Governance competences are already the most important in 2025. This is plausible because PMOs, project offices, internal consultants, and other support functions are often responsible for methods, standards, processes, templates, reporting systems, quality assurance, and competence support. In the context of AI adoption, Support roles may therefore be expected to provide the governance infrastructure that enables responsible and consistent AI use across projects and the business.

For **Support roles in 2030**, Governance competences increase further to 5.5. Management competences follow with 4.8, Context competences with 4.7, Change competences with 4.4, Creativity and Digital competences each with 4.3, Inter-/Personal competences with 4.1, and Data competences with 3.9.

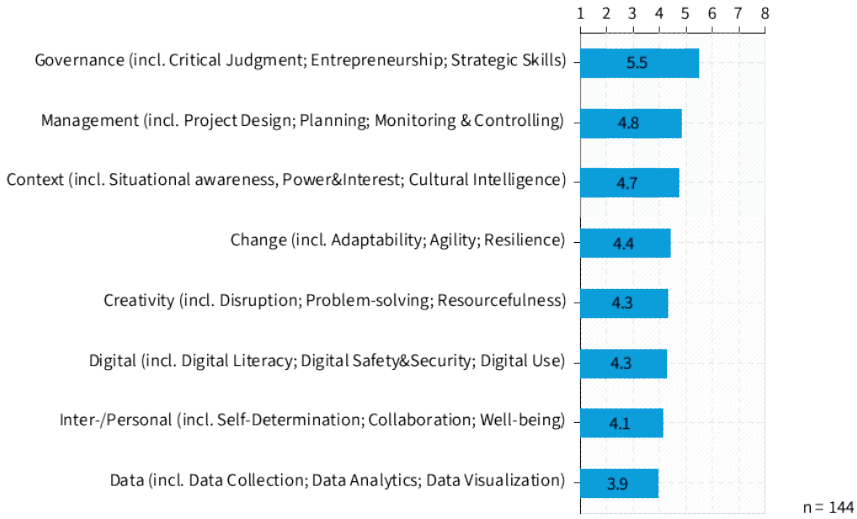

Figure 4.14b: Importance of competence clusters for Support roles in 2030, n = 144

The 2030 results suggest that Support roles will increasingly combine governance with management and contextual competences. This may reflect the expectation that PMOs and support functions will not only provide administrative support, but will also shape AI-enabled project management practices. They may be required to translate organizational AI strategies into project management standards, support competence development, provide methodological guidance, and ensure that AI-based tools are integrated into existing project, program, and portfolio processes.

For **Support roles in 2035**, Governance competences remain the highest with approximately 5.4. Management competences follow with approximately 4.9. Context and Change competences reach approximately 4.6. Digital competences score approximately 4.2, while Creativity and Data competences are approximately 4.1. Inter-/Personal competences are approximately 4.0.

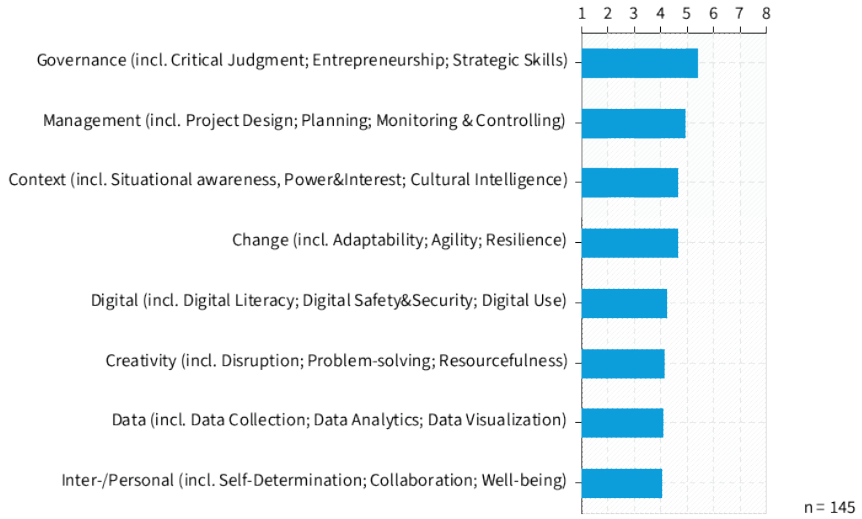

Figure 4.14c: Importance of competence clusters for Support roles in 2035, n = 145

The 2035 results indicate a continued emphasis on Governance and Management competences for Support roles. Support roles are therefore expected to remain central to the institutionalization of AI-enabled project business. They may become the custodians of project-business governance, AI-enabled methods, competence frameworks, reporting standards, and learning systems. The relatively low ranking of Data competences is somewhat surprising, given the importance of data for AI adoption. One possible explanation is that respondents may associate Data competences more strongly with specialized analytics roles than with broader project support roles. Another explanation is that Data competences may be perceived as embedded in Digital or Management competences rather than as a separate competence cluster.

4.10.4 Cross-role comparison and time-based interpretation

Across all three role clusters, several patterns emerge.

First, Digital and Data competences dominate Management and Steering roles in the early phase. In 2025, Digital competences received the highest scores for

both Management roles and Steering roles, with 6.4 and 6.6, respectively. Data competences also rank second in both role clusters. This suggests that respondents see the immediate competence challenge of AI adoption primarily as digital understanding and data use.

Second, Management competences gain importance over time. For Management roles, the Management competence cluster increases from 3.4 in 2025 to 4.5 in 2030 and 4.8 in 2035. For Steering roles, it increases from 4.1 in 2025 to 5.0 in 2030 and 5.3 in 2035. For Support roles, it rises from 4.3 in 2025 to 4.8 in 2030 and approximately 4.9 in 2035. This is a central finding. It indicates that AI does not simply reduce the importance of management competence. Rather, respondents expect Management competences to become more relevant again as AI becomes embedded in project business. The likely reason is that AI-generated information, forecasts, and recommendations still need to be interpreted, prioritized, and transformed into decisions.

Third, Governance competences show a strongly role-specific pattern. They are ranked highest for Support roles across all three time horizons, but lowest for Steering roles and relatively low for Management roles. This raises an important interpretive question. In formal role logic, Steering roles are usually closely connected with governance. However, respondents may perceive Governance competences as primarily located in support systems, PMOs, and methodological functions rather than in steering bodies themselves. Alternatively, they may assume that governance authority is already inherent in Steering roles and therefore not perceived as a future competence gap. This finding should be discussed carefully, especially in relation to AI governance, accountability, and responsible decision-making.

Fourth, Inter-/Personal competences are consistently ranked in the lower range across all role clusters and time horizons. This is surprising in view of the broader literature on AI, leadership, and human-AI collaboration, which often emphasizes communication, trust, collaboration, psychological safety, and well-be-

ing as increasingly important. One possible interpretation is that respondents perceive Inter-/Personal competences as foundational but not as the most urgent AI-related competence gap. Another possibility is that the expected technical and data-related changes are currently more visible than the social and interpersonal consequences of AI adoption. This result should not lead to the conclusion that Inter-/Personal competences are unimportant. Rather, it may indicate that their importance is underestimated in current perceptions of AI-enabled project business.

Fifth, Change and Creativity competences remain relatively stable in the middle range. They do not dominate the competence rankings, but they are consistently present across roles and years. This suggests that respondents recognize the need for adaptability, agility, resilience, problem-solving, and resourcefulness, but see them as complementary rather than primary competence shifts.

Sixth, the time trend suggests normalization of Digital competences. Digital competences are very high in 2025, especially for Management and Steering roles, but their relative scores decrease by 2035. This does not mean that Digital competences become less relevant in absolute terms. Rather, it may indicate that respondents expect digital literacy to become a baseline competence over time. As AI becomes embedded in project-business systems, the differentiating competences shift toward Data, Management, Governance, and Context.

Overall, the role-specific competence rankings support the study's broader conclusion: AI adoption creates distinct competence priorities across project--business roles. Management roles need to combine digital, data, and renewed management competences. Steering roles need to move from digital awareness toward data-informed management and strategic decision-making. Support roles need to strengthen their governance and management capabilities to institutionalize AI-enabled project and business practices. Across all roles, the competence shift is dynamic and unfolds over time, with 2030 emerging as a particularly important transition horizon.

4.11 Generational comparison: Generation Z versus older generations

The inferential statistical analysis examined whether Generation Z respondents deviate from other generations in their questionnaire answers. Because the Generation Z group is relatively small, results must be interpreted with caution and should be considered alongside effect sizes and adjusted significance levels.

Overall, the results show that Generation Z does not deviate significantly from older generations in their intentions to use AI or the main UTAUT variables. The mean intention to apply more AI in project management is 5.81 for Generation Z and 6.05 for other generations. The difference is not statistically significant. Performance expectancy is almost identical, with 5.90 for Generation Z and 5.92 for other generations. Effort expectancy is also nearly identical, with 3.76 for Generation Z and 3.78 for other generations. Social influence is slightly higher for Generation Z, with 5.00 compared to 4.85, but the difference is not significant. Facilitating conditions are also slightly higher for Generation Z, with 4.48 compared to 4.32, but again without statistical significance.

Variable	Gen Z mean	Other generations mean	Difference	Cohen's d	p	FDR q	Interpretation
Intention to apply more AI in PM	5.81	6.05	-0.24	-0.202	.393	.865	No significant difference
Performance expectancy	5.90	5.92	-0.01	-0.010	.959	.971	No difference
Effort expectancy	3.76	3.78	-0.02	-0.014	.956	.971	No difference
Social influence	5.00	4.85	0.15	0.116	.601	.971	No significant difference
Facilitating conditions	4.48	4.32	0.16	0.093	.660	.971	No significant difference
Already apply AI to PM	5.71	4.85	0.87	0.520	.006	.064	Gen Z higher, but not significant after FDR correction
Traditional PM competences less important	4.00	3.12	0.88	0.542	.032	.176	Gen Z higher, but not significant after FDR correction

Table 4.1: Generation Z versus other generations on AI intention and UTAUT variables

Two exploratory differences are noteworthy. Generation Z respondents report a higher level of current AI application in project management, with a mean of 5.71 compared to 4.85 for other generations. The effect size is moderate, with Cohen's d = 0.520. The unadjusted p-value is .006, but after FDR correction, the q-value is .064. This means the result should be interpreted as an exploratory trend rather than a robust significant difference. Generation Z respondents also show stronger agreement that traditional project management competences may become less important, with a mean of 4.00 compared to 3.12 for other generations. The effect size is again moderate, with Cohen's d = 0.542. However, this difference is no longer significant after correction for multiple comparisons.

The conclusion is therefore nuanced. Generation Z appears somewhat more active or progressive in their current use of AI and may be more open to the idea that traditional project management competences will lose relative importan-

ce. However, the evidence is not strong enough to claim a broad generational deviation. AI-related intention and the main UTAUT predictors are broadly similar across generations.

4.12 UTAUT regression: Predicting intention to use AI in project management

A multiple regression analysis was conducted to test which UTAUT variables predict the intention to use AI more intensively in project management. The dependent variable was behavioral intention, measured by the item "I intend to apply even more AI to PM in the future." The independent variables were performance expectancy, effort expectancy, social influence, and facilitating conditions.

The model is statistically significant, with $R^2 = .386$ and adjusted $R^2 = .377$. This means that the UTAUT predictors explain approximately 38% of the variance in the intention to apply more AI in project management. The model fit is strong for an attitudinal survey model.

The dominant predictor is performance expectancy. It has a standardized beta coefficient of $\beta = .622$ and is highly significant with $p < .001$. This means respondents are more likely to intend to use AI when they believe it will improve the project's business performance. The unstandardized coefficient is $B = 0.655$, with a 95% confidence interval from 0.550 to 0.760.

Effort expectancy, social influence, and facilitating conditions do not significantly predict behavioral intention once performance expectancy is included in the model. Effort expectancy has a small negative and non-significant coefficient. Social influence and facilitating conditions have very small positive but non-significant coefficients. The VIF values are all below 1.30, indicating no problematic multicollinearity among the predictors.

Predictor	B	SE	Std. β	t	p	95% CI	VIF
Performance expectancy	0.655	0.053	0.622	12.297	< .001	[0.550, 0.760]	1.110
Effort expectancy	-0.019	0.041	-0.025	-0.466	.642	[-0.100, 0.062]	1.235
Social influence	0.015	0.049	0.016	0.301	.763	[-0.081, 0.111]	1.209
Facilitating conditions	0.008	0.037	0.012	0.216	.829	[-0.065, 0.082]	1.295

Table 4.2: UTAUT regression predicting intention to use AI in project management

The conclusion is clear: respondents' willingness to use more AI in project management is driven primarily by perceived performance benefits. Ease of use, social support, and existing organizational or technical prerequisites are descriptively relevant, but they do not add significant explanatory power to the regression model once performance expectancy is considered.

This finding has practical importance. It suggests that AI adoption in project business should be framed and implemented around concrete performance contributions. Organizations need to demonstrate how AI improves project planning, decision quality, risk management, reporting, transparency, productivity, or portfolio performance. If respondents do not perceive such performance benefits, their intention to adopt is likely to remain limited.

4.13 Controlled regression

A controlled regression model was estimated to test whether the UTAUT predictors remain significant after accounting for additional work-related variables. The controls included Generation Z membership, years of project-business experience, average share of working hours in project business, and role category. The controlled model is statistically significant, with $R^2 = .400$ and adjusted $R^2 = .379$. The explanatory power increases only slightly compared to the main UTAUT model. Performance expectancy remains the only statistically significant predictor, with a standardized beta coefficient of $\beta = .613$ and $p < .001$. The unstandardized

coefficient is B = 0.646, with a 95% confidence interval from 0.539 to 0.752.

None of the additional control variables is statistically significant. Generation Z membership does not significantly predict intention to use AI after controlling for UTAUT predictors and work-related variables. Years of project management experience, share of working hours in project business, and role category also do not significantly predict behavioral intention in the controlled model.

Predictor	B	SE	Std. β	t	p	95% CI	VIF
Performance expectancy	0.646	0.054	0.613	11.931	< .001	[0.539, 0.752]	1.149
Effort expectancy	-0.025	0.041	-0.032	-0.601	.549	[-0.105, 0.056]	1.241
Social influence	0.023	0.049	0.025	0.463	.644	[-0.074, 0.119]	1.220
Facilitating conditions	0.014	0.037	0.020	0.369	.713	[-0.060, 0.088]	1.308
Gen Z	-0.222	0.242	-0.050	-0.918	.360	[-0.697, 0.254]	1.308
Years PM experience	-0.007	0.006	-0.062	-1.145	.253	[-0.019, 0.005]	1.274
PM work share %	0.003	0.002	0.067	1.331	.184	[-0.001, 0.008]	1.094
Role: Steering	0.094	0.171	0.028	0.548	.584	[-0.244, 0.432]	1.160
Role: Support	-0.154	0.142	-0.057	-1.087	.278	[-0.434, 0.125]	1.177

Table 4.3: Controlled regression predicting intention to use AI in project management

This result reinforces the central finding: the perceived contribution of AI to performance is the key driver of the intention to use AI more intensively in project management. Generational membership, experience, role, and project-work intensity do not substantially change this interpretation.

4.14 Regression diagnostics and robustness considerations

Regression diagnostics were examined for the main UTAUT model and the controlled model. The VIF values are low, ranging from 1.110 to 1.295 in the main model and remaining below 1.31 in the controlled model. This indicates that multicollinearity is not a concern.

The Durbin–Watson value is 1.842, suggesting no severe autocorrelation problem. The maximum Cook's distance is 0.104, indicating that no single case has excessive influence on the model results. These diagnostics support the stability of the main interpretation.

However, the Shapiro–Wilk test indicates that the residuals deviate from normality. This is not unexpected because the dependent variable is a bounded Likert--scale item. The Breusch–Pagan test is significant, indicating possible heteroskedasticity. Therefore, the regression results should preferably be checked with robust standard errors as a sensitivity analysis. Nevertheless, the substantive interpretation is stable because performance expectancy is very strongly significant, while the other UTAUT predictors remain clearly non-significant.

4.15 Exploratory moderation by Generation Z

An additional exploratory moderation model was estimated to examine whether the relationship between the UTAUT predictors and behavioral intention differs between Generation Z respondents and older generations. The Gen Z interaction block is statistically significant, with $\Delta R^2 = .025$, $F(4,261) = 2.75$, $p = .029$.

This result may indicate that the relative importance of some UTAUT predictors differs between Generation Z and older generations. However, the finding must be interpreted cautiously because only 21 Generation Z respondents had complete data for the UTAUT regression model. The moderation result should therefore be treated as exploratory rather than confirmatory.

The overall conclusion is that no robust, broad generational difference can be claimed based on the current dataset. However, the exploratory moderation finding suggests that generational dynamics may become relevant in larger samples and warrant closer examination in future research.

5. DISCUSSION

5.1 From AI adoption to competence transformation

The findings of this study point to a broader transformation of project business. Artificial intelligence is not simply another technology added to the existing project management toolbox. It changes the distribution of work between humans and technology, alters role expectations, and challenges established assumptions about what professional project management competence means. The results indicate that project professionals expect AI to substitute a substantial share of traditional project management tasks over the coming years. However, the same results also show that traditional project management competences are not perceived as becoming irrelevant. This apparent tension is one of the central insights of the study.

The most plausible interpretation is that the project management profession is entering a phase of competence reconfiguration. Routine-oriented, administrative, and information-processing tasks will increasingly be supported or partially substituted by AI. At the same time, human project professionals will need to strengthen the competences required to interpret, validate, govern, and apply AI-generated insights in complex organizational contexts. This confirms the argument in the literature that AI is likely to change jobs by enhancing, eliminating, or reshaping tasks rather than replacing entire professions in a simple, linear manner (Srinivasan, 2026). It also connects with Taylor's (2026) provocative notion of the "invisible project manager", which highlights the possibility that many operational project management tasks may become embedded in AI-enabled systems.

The contribution of this study is empirical evidence from the German project management community on this transition. Respondents do not reject AI; on the contrary, they are highly willing to use it. Yet they also recognize that AI adoption requires new competence profiles and new development pathways. The discussion should therefore not be framed as "AI versus project managers", but as "AI-enabled project business and the changing role of human competence".

5.2 The role of performance expectancy: AI adoption must be value-driven

The UTAUT-based analysis provides a clear message: the intention to use AI in project management is driven primarily by performance expectancy. In other words, project professionals are willing to adopt AI when they believe it will improve project and business performance. This finding is consistent with the logic of UTAUT, where performance expectancy is one of the strongest predictors of technology acceptance (Venkatesh et al., 2003). However, the strength of this effect in the present study is particularly relevant for practice.

Project professionals do not appear to be motivated primarily by the novelty of AI, by social pressure, or by the mere availability of tools. They are motivated by expected practical value. This has important implications for organizations. AI adoption in project business should not be introduced as an abstract digitalization initiative, a technological fashion, or a general efficiency campaign. It needs to be linked to concrete performance improvements: better risk anticipation, faster reporting, more reliable planning, improved portfolio transparency, more effective resource allocation, higher decision quality, and more learning from project data.

This result also challenges a purely tool-based implementation logic. Providing access to generative AI systems, predictive analytics dashboards, or AI-enabled project management software will not be sufficient. Organizations need to demonstrate how these tools improve the daily work of project professionals and the performance of projects, programs, and portfolios. This also means that AI use cases should be selected carefully. The most convincing use cases are likely those where project professionals immediately experience relief from repetitive work or improvement in decision quality.

At the same time, the result raises a caution. If performance expectancy dominates adoption intention, there is a risk that AI will be evaluated mainly through

short-term efficiency gains. Such a narrow view would understate the broader transformation challenge. AI may indeed improve performance, but it also changes accountability, role identity, governance requirements, team dynamics, and competence development. Organizations should therefore combine a value-driven adoption strategy with responsible governance and human-centered implementation principles.

5.3 Traditional PM competences are not disappearing; they are being repositioned

One of the most important findings is that the majority of respondents do not believe that traditional project management competences will become less important. This is significant because many AI-related debates suggest that planning, monitoring, controlling, reporting or documentation will soon be automated to such an extent that traditional project management knowledge will lose value. The results of this study suggest a more nuanced interpretation.

Traditional project management competences remain relevant, but their center of gravity shifts. Planning competence will no longer be defined primarily by the ability to manually construct a project schedule. It will increasingly include the ability to evaluate AI-generated plans, understand dependencies, challenge assumptions, and integrate stakeholder knowledge that is not visible in the data. Risk management competence will not disappear because AI can detect patterns or predict risks. Rather, risk competence will increasingly include the ability to interpret signals, assess systemic implications, and decide which preventive or corrective actions are appropriate. Reporting competence will not vanish because AI can draft reports. Instead, it will involve deciding what needs to be reported, how uncertainty should be communicated, and how information should support governance and decision-making.

This repositioning is highly relevant for competence standards such as the IPMA Individual Competence Baseline. The ICB4 structure of Perspective, People, and

Practice remains conceptually robust because it broadly defines project management competence. However, the meaning and weighting of certain competence elements may need to be reconsidered in an AI-enabled project environment. Practice competences will become more AI-augmented. Perspective competences will gain relevance because AI raises issues of governance, strategy, compliance, culture, and power. People's competences will become essential because AI adoption affects collaboration, trust, leadership, conflict, and professional identity.

The findings, therefore, support an evolutionary rather than revolutionary view of competence standards. The profession should not discard established competence frameworks. Instead, it should reinterpret and extend them. Future competence baselines need to include AI literacy, data literacy, critical judgment, digital ethics, human-AI collaboration, and AI governance while maintaining the established foundations of professional project management. It is noteworthy that at the time of this report's preparation, IPMA is working on the fifth version of the IPMA ICB, which will include a new practice competence called "Digital Enablement."

5.4 The emerging project professional: From administrator to orchestrator

The broader role implication of the study is a shift from the project manager as an administrator or controller to the project professional as an orchestrator. This does not mean that administrative, planning, or controlling tasks disappear entirely. Rather, they become increasingly embedded in AI-supported systems. The human value contribution moves toward orchestration: aligning goals, interpreting complexity, coordinating human and technological actors, enabling decisions, managing stakeholder trust, and ensuring responsible delivery.

This shift is consistent with the literature on human-AI collaboration. Daugherty and Wilson (2024) argue that value is created through new forms of collaborati-

on between humans and machines. Shneiderman (2022) emphasizes the importance of human-centered AI that strengthens human agency and responsibility. Applied to project business, these perspectives suggest that the future project professional will not simply "use" AI as a passive tool. Rather, they will manage an increasingly complex socio-technical system in which AI agents, data infrastructures, project teams, decision boards, and stakeholders interact.

The role of the project manager may therefore become less visible in some operational processes but more important in higher-order tasks. If AI drafts the status report, the project manager must ensure it is meaningful, accurate, contextualized, and decision-relevant. If AI identifies risks, the project manager must decide which risks matter and how to address them. If AI proposes a resource allocation scenario, the project manager must consider organizational politics, capability constraints, team morale, and strategic priorities.

This orchestration role requires a different combination of competences. It combines digital and data competences with leadership, contextual judgment, ethical reasoning, change competence, and organizational learning. It also requires confidence in working with ambiguity. AI-generated outputs may appear precise, but they are often based on incomplete data, assumptions and probabilistic patterns. The future project professional must therefore be able to work with AI without surrendering professional judgment to it.

5.5 Different roles, different competence shifts

The role-specific competence rankings show that AI-induced changes in competence are not identical across the Management, Steering, and Support roles. This is important because project business is a role system. Competence development cannot be designed effectively if all project professionals are treated as one homogeneous group.

Management roles appear to require a strong combination of digital, data, and renewed management competences. In the short term, digital and data compe-

tences are dominant, reflecting the immediate need to understand and apply AI--enabled tools. Over time, management competences become more prominent again. This suggests that AI does not make management competence obsolete; rather, it changes how management work is performed.

Steering roles show a shift toward data-informed management and strategic decision-making. Digital understanding is initially important, but by 2035, data and management competences will become central. This implies that steering bodies, sponsors, and portfolio decision-makers will need to make greater use of AI-generated insights while remaining accountable for strategic choices. The low ranking of governance competences for Steering roles is noteworthy and should be interpreted carefully. It may indicate that respondents assume governance to be inherent in steering roles rather than a future competence gap. However, from a big-picture perspective, this could also reveal a risk: AI governance may be underestimated precisely where accountability is highest.

Support roles show a distinctive emphasis on governance and management competences. This suggests that PMOs, project offices, project controllers, consultants, and other support functions may become key institutional actors in AI-enabled project business. They will likely be responsible for translating AI potential into standards, templates, learning systems, data structures, reporting processes, and governance rules. In this sense, Support roles may become the backbone of AI-enabled project maturity.

The role-specific findings have strong implications for competence development. Organizations should not design generic AI training for all project professionals. They need role-based development pathways. Management roles need practical AI use, data interpretation, and human-AI collaboration. Steering roles need AI--supported decision-making, portfolio analytics, governance, and accountability. Support roles need AI governance, data integration, method development, change enablement, and competence architecture.

5.6 AI as a dynamic capability challenge

The results also support the dynamic capability perspective introduced in the theoretical chapter. AI adoption in project business is not a one-time implementation effort. It requires the organizational capabilities to sense, seize, and reconfigure.

Sensing means recognizing how AI changes project tasks, role expectations, and competence gaps. This study shows that many project professionals are already aware of changing competence requirements. However, awareness at the individual level must be translated into organizational sensing. Organizations need mechanisms to continuously monitor the impact of AI on project performance, role profiles, learning needs, governance risks, and workforce planning. **Seizing** means turning AI opportunities into concrete initiatives, use cases, training programs, standards, and investment decisions. The findings suggest that respondents are willing to develop their competences, but they expect organizational support. This means that organizations must actively create learning environments, not merely encourage individuals to "keep up" with AI. **Reconfiguring** means embedding AI-enabled practices into roles, processes, governance systems, PMOs, competence models, and certification pathways. This is likely to be the most difficult step. Many organizations can run AI pilots. Fewer are able to transform local experiments into durable organizational capabilities. The study indicates that competence development must therefore be integrated with organizational design, not treated as an isolated HR activity.

This point connects with Mariani and Mancini's (2025) argument that AI capabilities create value through organizational agility. AI does not create value automatically. It creates value when organizations combine technology, data, people, and processes in ways that support adaptation and performance. Project business is particularly suited to this perspective because projects are themselves vehicles of change. However, project organizations must also change themselves to use AI effectively.

5.7 Competence development as a socio-technical learning challenge

A key big-picture implication is that competence development in the age of AI is not simply a matter of training individuals on new tools. It is a socio-technical learning challenge. The survey results show high individual readiness for competence development, but also important barriers: fear of job displacement, silo thinking, limited organizational support, and lack of experimentation opportunities. The strongest enabler is psychological safety.

This combination is highly instructive. AI competence development requires learning, but learning requires trust. If individuals believe that AI will make them redundant, they may avoid experimenting with it or use it defensively. If knowledge is trapped in silos, learning remains local. If organizations do not provide time and support, AI competence development becomes an additional burden rather than a strategic investment.

The preference for learning-by-doing further reinforces this point. AI-related competences cannot be developed only through theoretical instruction. They emerge through repeated interaction with AI systems, reflection on outputs, peer exchange, contextual application and feedback. This suggests that organizations need to create learning architectures rather than training catalogs. Such architectures may include AI labs, communities of practice, mentoring, peer learning, role-based learning journeys, project-based experimentation, and feedback loops between project teams and PMOs.

The results also suggest that competence development should be continuous. AI tools evolve rapidly, and project and business applications will change accordingly. Therefore, competence models must not be static. They should be reviewed regularly, linked to practical use cases, and adjusted as AI capabilities and organizational needs evolve.

5.8 Generation Z matters, but not in a simplistic way

The study includes a generational perspective, particularly regarding Generation Z. The inferential results do not show robust, broad differences between Generation Z and older generations in AI use intention or the main UTAUT variables. This is an important corrective to simplistic generational narratives. It would be misleading to assume that younger respondents are automatically and fundamentally different in all AI-related attitudes.

At the same time, the results show exploratory indications that Generation Z may be somewhat more active in current AI use and somewhat more open to the idea that traditional project management competences will become less important. Because the Generation Z subsample is small, these findings should be interpreted with caution. Nevertheless, they point to a relevant issue for future research and practice.

Generation Z may not differ radically in whether it accepts AI, but it may differ in how it expects AI to be embedded in work. Younger professionals often expect digital tools to be intuitive, learning opportunities to be continuous, feedback to be frequent, and work environments to support autonomy, development, and well-being. In project business, these expectations may become increasingly important for attracting and retaining talent.

The big-picture implication is that organizations should not design AI-enabled project business only around productivity. They must also consider the work experience of future project professionals. If AI is used to increase control, accelerate workload, and intensify performance pressure, it may undermine engagement. If AI is used to reduce routine work, support learning, increase autonomy, and enable more meaningful contributions, it may strengthen the attractiveness of project roles.

5.9 Well-being and psychological safety as strategic project--business issues

The results highlight well-being and psychological safety as important themes. This is not peripheral. Project business is often characterized by high time pressure, uncertainty, stakeholder conflict, resource constraints, and frequent change. AI can either reduce or intensify these pressures.

On the positive side, AI can relieve project professionals from repetitive administrative tasks, support better decisions, and improve transparency. This could create more space for meaningful work, creativity, stakeholder engagement, and leadership. On the negative side, AI may increase expectations to deliver more in less time, intensify monitoring, reduce perceived autonomy, and create anxiety about job displacement.

The finding that psychological safety is the strongest enabler of competence development is therefore highly significant. It indicates that AI adoption must be managed as a human transformation, not only a technical transformation. People need to feel safe to learn, experiment, question AI outputs, admit uncertainty, and discuss role changes. Without psychological safety, AI adoption may yield compliance rather than genuine learning.

This also has implications for project leadership. Future project leaders will need to manage not only scope, time, cost, and quality, but also the human conditions under which AI-enabled project work can succeed. Well-being, trust, and learning orientation should therefore be considered part of project performance capability. In this sense, the “people side” of AI adoption becomes a strategic success factor.

5.10 Implications for PMOs and project governance

The study suggests that PMOs and related support functions may play a pivotal role in the transition to AI-enabled project business. As AI becomes embedded in project management processes, organizations will need standards for AI-suppor-

ted planning, reporting, risk analysis, documentation, lessons learned, decision support, and portfolio management. They will also need governance rules on data use, transparency, accountability, validation, and ethical boundaries.

This creates an opportunity for PMOs to move from administrative support units toward strategic enablers of AI-enabled project capability. A future-oriented PMO can curate AI use cases, provide guidance, establish data standards, support competence development, facilitate communities of practice, and advise steering bodies on AI-enabled decision-making. It can also help prevent fragmented AI adoption, in which different project teams use different tools and practices without shared governance.

At the same time, PMOs must avoid becoming bureaucratic blockers. AI adoption requires experimentation. PMOs, therefore, need to balance governance and agility. Their role is not to prevent AI use, but to enable responsible, effective, and scalable AI use. This requires PMOs themselves to develop new competences in AI literacy, data governance, digital tooling, change management, and organizational learning.

5.11 Implications for professional associations and certification systems

The findings have important implications for project management associations and certification bodies. Professional standards and certifications shape what the project management community considers legitimate competence. If AI changes project tasks and role expectations, competence standards must respond.

This does not mean replacing established standards such as ICB4. Rather, it means extending and interpreting them in light of AI-enabled project business. AI literacy, data literacy, human-AI collaboration, AI governance, digital ethics, and critical validation of AI outputs should become visible in competence frameworks. Certification systems may need to assess not only knowledge of methods, but also the ability to apply judgment in AI-supported environments.

Associations can also support the profession by creating learning ecosystems. They can provide guidance, case studies, communities of practice, ethical principles, role-based competence pathways, and continuing professional development formats. They can also help prevent exaggerated narratives, both utopian and dystopian. The professional community needs a balanced discourse: AI is neither a magic solution nor the end of project management. It is a powerful transformation force that requires a professional response.

5.12 The paradox of AI in project business

The study points to several paradoxes that should shape the interpretation of the findings.

The first paradox is that AI may reduce routine work while increasing the demands on competence. As routine tasks are automated, the remaining human tasks become more complex, contextual, and responsibility-laden.

The second paradox is that AI may improve transparency while increasing governance risks. More data and better analytics can support decision-making, but they can also create overconfidence, surveillance concerns, or unclear accountability.

The third paradox is that AI may increase efficiency while intensifying workload. If organizations use AI only to demand more output in less time, the human benefits of automation may disappear.

The fourth paradox is that AI may democratise project management knowledge while creating new competence inequalities. Those who learn to use AI effectively may gain significant advantages, while others may fall behind.

The fifth paradox is that AI may strengthen project management as a strategic discipline while weakening traditional role identities. Project professionals may become more valuable, but not by doing the same work as before.

These paradoxes suggest that AI adoption in project business should be approached reflectively. The key question is not only what AI can do, but what kind of project business organizations want to create with AI.

5.13 Overall interpretation

The big-picture conclusion is that project business is moving toward an AI-enabled operating model. In this model, AI supports or substitutes many routine management tasks, while human project professionals increasingly focus on orchestration, judgment, governance, stakeholder alignment, learning, and responsible decision-making.

The results support the view that competence transformation will become one of the most important success factors for AI adoption in project business. Technology adoption alone will not be enough. Organizations need to develop the human and organizational capabilities required to make AI useful, trustworthy, and value-creating.

The findings also show that the transformation is already visible and expected to accelerate by 2030. This makes the current period a critical window for action. Organizations, PMOs, individuals, and professional associations should not wait until AI-enabled project business becomes fully institutionalized. They need to shape the transition now.

In summary, AI does not make project management obsolete. It changes what excellent project management means. The future project professional will be less occupied with routine administration and more responsible for guiding complex socio-technical systems. This is not a decline of the profession. It is a call for its next stage of maturity.

6. CONCLUSIONS

6.1 Summary of the study

This study examined future competence requirements for project business in an era of artificial intelligence. It was motivated by the observation that AI is increasingly entering project management practice and beginning to substitute for, augment, or reshape tasks traditionally performed by project professionals. The study focused on two central research questions:

1. Which future competences are required in view of the increasing importance of AI in the project business?
2. How can these future competences be obtained in view of the increasing dynamics in the project business?

The study was conducted in the German project business context and addressed project professionals across Management, Steering, and Support roles. It combined competence-related questions with the theoretical lens of the Unified Theory of Acceptance and Use of Technology (UTAUT). It also considered role clusters, generational differences, competence development formats, barriers, enablers, and time horizons extending from 2025 to 2030 and 2035.

The results provide a clear overall message: AI adoption in project business is not only a technological development. It is a competence transformation. AI is expected to take over a growing share of routine, administrative, and information-processing tasks. At the same time, human project professionals will not become irrelevant. Their role will shift toward judgment, orchestration, governance, leadership, contextual interpretation, and continuous learning.

6.2 Key findings

The first key finding is that AI adoption in project business is expected to accelerate significantly. Respondents estimate that AI will substitute approximately

22.2% of traditional project management tasks in 2025, increasing to 51.6% by 2030 and 63.5% by 2035. This indicates a substantial transformation of the project management task profile within a relatively short time horizon.

The second key finding is that project professionals show a strong intention to use AI more intensively. Respondents broadly expect AI to improve the performance of the project business. The UTAUT-based regression analysis confirms that performance expectancy is the dominant predictor of behavioral intention to use AI in project management. In practical terms, project professionals are willing to adopt AI when they believe it will deliver real performance benefits, such as better planning, faster reporting, improved risk management, more reliable forecasts, and better decision support.

The third key finding is that traditional project management competences are not perceived as becoming obsolete. Most respondents disagree that traditional PM competences will become less important. Instead, the results suggest that these competences will be repositioned. Planning, monitoring, controlling, risk management, and reporting will increasingly be supported by AI, but they will still require human judgment, validation, and interpretation.

The fourth key finding is that respondents are highly aware of changing competence requirements. A large majority recognizes that competence requirements in project business are changing, and an even larger share expects that these requirements will influence the selection, deployment, and development of personnel by 2030. This indicates that AI-induced changes in competence are not a distant-future issue. It is already recognized by the project management community as a near-term strategic challenge.

The fifth key finding is that readiness for competence development is very high. Respondents show a strong willingness to develop their own competences to cope with future requirements. Preferred development formats are strongly practice-oriented, especially learning-by-doing, peer learning, cross-generational exchange, online courses, mentoring, and coaching. This suggests that future

competence development should be embedded in project practice rather than limited to traditional training formats.

The sixth key finding is that competence requirements differ by role. Management roles require a strong combination of digital, data, and renewed management competences. Steering roles increasingly require data-informed management and strategic decision-making competences. Support roles, especially PMOs and project support functions, are expected to play a central role in governance, standardization, competence support, and institutionalization of AI-enabled project business.

The seventh key finding concerns barriers and enablers. The strongest barrier to acquiring new competences is the fear of job displacement. Other barriers include silo thinking, poor knowledge sharing, lack of organizational support, and insufficient opportunities for experimentation. The strongest enabler is psychological safety, followed by strategic workforce planning, innovative learning formats, and clear future competence frameworks. This shows that competence development in the AI era is not only a cognitive or technical challenge. It is also emotional, organizational, and cultural.

The eighth key finding is that Generation Z does not differ as strongly from older generations as might have been expected. Gen Z respondents appear somewhat more active in current AI use and somewhat more open to the view that traditional PM competences may become less important. However, these differences are not robust enough to support broad generational claims. This suggests that AI adoption and competence development should not be reduced to generational stereotypes. Nevertheless, changing expectations regarding learning, technology, autonomy, development opportunities, and well-being remain important for the future of project business.

6.3 Contributions to theory

This study contributes to theory in several ways.

First, it extends the application of UTAUT to the specific context of AI-enabled project business. UTAUT has often been used to explain technology acceptance in organizational settings. This study shows that the model is useful for explaining AI-use intention in project management, particularly through the construct of performance expectancy. However, the findings also suggest that AI adoption in project business cannot be understood solely as a technology acceptance issue. It is also a competence development and role transformation issue.

Second, the study connects technology acceptance with competence theory. The results indicate that the willingness to use AI is not only a function of perceived usefulness but also depends on whether individuals and organizations can develop the competences required to use AI responsibly and effectively. This points toward a broader theoretical model in which AI adoption, competence development, and organizational capability building interact.

Third, the study contributes to the emerging theory of human-AI collaboration in project-based work. It supports the view that AI does not simply replace human work but changes the distribution of tasks between humans and technology. Routine tasks may be increasingly automated, while human work shifts toward orchestration, contextual judgment, ethical reasoning, leadership, and governance.

Fourth, the role-specific findings contribute to a more differentiated understanding of project business. The study shows that Management, Steering, and Support roles are affected differently by AI. This is theoretically important because project business should not be treated as a homogeneous professional field. AI-induced competence transformation unfolds differently depending on role, level of responsibility, decision authority, and organizational function.

Fifth, the study contributes to the theoretical discussion on dynamic capabilities. AI adoption in project business requires organizations to sense emerging competence gaps, seize AI opportunities through learning and governance, and reconfigure roles, processes, and competence systems. This reinforces the view that AI

value creation depends not only on technology but also on organizational agility and capability development.

6.4 Contributions to literature

The study adds empirical evidence to a growing body of literature on AI and project management. Much of the current literature discusses AI in project management conceptually, technologically, or through selected use cases. This study provides survey-based evidence from experienced project professionals in Germany, thereby adding an empirical perspective to the debate.

The study supports literature suggesting that AI will significantly affect project management tasks. It aligns with Gartner's prediction that AI will take over a substantial share of project management activities and with Taylor's argument that the project manager role may become less visible in operational routines. At the same time, the study nuances these claims by showing that project professionals do not expect traditional competences to disappear. Rather, they expect a shift in how those competences are applied.

The study also contributes to the literature on AI literacy and digital capabilities in project management. The results reinforce the argument that project professionals need more than tool familiarity. They require data literacy, AI literacy, critical judgment, an understanding of governance, and the ability to integrate AI-generated outputs into human decision-making.

Furthermore, the study adds to the literature on competence development in project-based organizations. It shows that future competence development should be practical, continuous, role-specific, and supported by psychological safety. This complements research on learning in project environments and highlights the need for learning ecosystems rather than isolated training interventions.

Finally, the study contributes to the literature on Generation Z and well-being in projects. It suggests that generational differences should be interpreted careful-

ly, but also confirms that expectations regarding technology use, development opportunities, autonomy, and well-being are becoming part of the discussion of future competence.

6.5 Practical implications

The findings have practical implications for three main groups: project management associations, organizations involved in project business, and individuals working in project-related roles.

6.5.1 Recommendations for project management associations

Project management associations should treat AI-induced competence transformation as a strategic priority. Competence standards, certification systems, and continuing professional development programs need to reflect the realities of AI--enabled project business.

First, associations should review existing competence baselines and certification frameworks. Established competence areas remain relevant, but they should be extended or reinterpreted to include AI literacy, data literacy, AI governance, digital ethics, critical validation of AI outputs, and human-AI collaboration.

Second, certification systems should not only test knowledge of traditional project management methods. They should increasingly assess the ability to work responsibly with AI-supported systems. This may include scenario-based assessments, ethical decision cases, AI-supported planning exercises, and evaluation of AI-generated project information.

Third, associations should develop guidance for responsible AI use in project business. This could include principles for transparency, accountability, data quality, human oversight, decision responsibility, and ethical use of AI in project, program, and portfolio management.

Fourth, associations should create communities of practice around AI in project management. These communities can help practitioners exchange experience, share use cases, develop a common language, and avoid both exaggerated hype and defensive resistance.

Fifth, associations should support research and longitudinal studies on AI-enabled project business. Since AI technologies evolve rapidly, competence standards should be informed by continuous empirical evidence.

6.5.2 Recommendations for organizations

Organizations involved in project-based work need to move from experimentation to strategic AI capability-building. AI should not be treated as a collection of individual tools, but as a transformation of project and business capabilities.

First, organizations should define a clear AI vision and roadmap for the project business. This roadmap should identify priority use cases, expected performance benefits, governance requirements, data prerequisites, and competence development needs.

Second, organizations should build AI-enabled project-business governance. This includes rules on data use, tool selection, human oversight, validation of AI outputs, accountability, documentation, and compliance.

Third, organizations should strengthen the role of PMOs and project support functions. PMOs can become key enablers of AI adoption by providing standards, tools, methods, learning formats, data structures, and communities of practice.

Fourth, organizations should develop role-specific competence pathways. Management roles, Steering roles, and Support roles require different competence profiles. A generic AI training program for all project professionals will not be sufficient.

Fifth, organizations should create practical learning environments. The strong preference for learning-by-doing shows that project professionals need real-

-world use cases, safe spaces for experimentation, peer exchange, mentoring, and coaching.

Sixth, organizations must address the fear of job displacement. AI adoption should be accompanied by a credible change narrative that explains how roles will evolve, which competences will be needed, and how employees will be supported in the transition.

Seventh, organizations should treat psychological safety as a strategic enabler of AI adoption. People will only experiment, learn, and critically reflect on AI if they feel safe asking questions, making mistakes, and discussing concerns.

Eighth, organizations should link AI adoption with well-being. AI should not be used merely to increase output pressure. It should also be used to reduce unnecessary routine work, improve decision quality, and create more meaningful project work.

6.5.3 Recommendations for individuals

Individuals working in project business should actively shape their own competence development. Waiting for organizations or associations to define the future role of project professionals is not sufficient.

First, project professionals should develop basic AI literacy. They do not all need to become data scientists, but they need to understand what AI can and cannot do, how AI outputs are generated, and where risks and limitations exist.

Second, they should build data literacy. Future project work will increasingly depend on the ability to understand, interpret, and challenge data-based insights.

Third, they should strengthen critical judgment. As AI produces more analyses, forecasts, and recommendations, the human ability to evaluate plausibility, context, and consequences becomes more important.

Fourth, project professionals should invest in leadership, communication and stakeholder competences. These competences become more important as AI changes roles, expectations, and collaboration patterns.

Fifth, individuals should engage in continuous learning. AI capabilities will continue to evolve, and competence development will not be achieved through a single training course. Learning-by-doing, peer exchange, experimentation, and reflection should become part of professional practice.

Sixth, individuals should cultivate a proactive professional identity. The future project professional is not replaced by AI but works with AI to create better project outcomes. This requires confidence, curiosity, and responsibility.

6.6 Future roadmap for AI-enabled project business

Based on the findings, a future roadmap for project business can be structured into three horizons.

Horizon 1: 2025–2026 — Awareness, orientation, and experimentation

In the first horizon, organizations and individuals should focus on awareness, orientation, and practical experimentation. AI use is already present, but not yet fully institutionalized. The priority should be to identify valuable use cases, clarify governance principles, provide basic AI literacy, and create safe spaces for experimentation.

Key actions include:

- establish an AI roadmap for the project business;
- identify high-value use cases in planning, reporting, risk management and decision support;
- provide basic AI and data literacy training;
- create initial AI governance guidelines;
- enable learning-by-doing in selected pilot projects;
- communicate clearly about role changes and development opportunities.

Horizon 2: 2027–2030 — Scaling, role redesign, and competence integration

By 2030, respondents expect AI to substitute a substantial share of project management tasks. This makes the second horizon critical. Organizations should move

from isolated pilots to scalable, AI-enabled project and business practices. Competence development should become role-specific and be integrated into HR, PMO, and governance systems.

Key actions include:

- redesign Management, Steering, and Support role profiles;
- integrate AI competences into competence models and career paths;
- establish PMO-led AI standards and communities of practice;
- introduce AI-supported portfolio and project reporting;
- develop mentoring, coaching, and personalized learning pathways;
- update recruitment, staffing, and assignment criteria;
- evaluate AI use cases through business value and human impact.

Horizon 3: 2031–2035 — Institutionalization and strategic renewal

By 2035, AI-enabled project business is likely to be a normal operating mode in many organizations. The focus should shift from adoption to maturity, institutionalization, and strategic renewal. AI should be embedded in project governance, project data architectures, learning systems, and organizational capability development.

Key actions include:

- institutionalize AI-enabled project-business governance;
- continuously update competence frameworks;
- integrate AI into certification, professional development, and project maturity models;
- use AI for strategic portfolio adaptation and organizational learning;
- monitor well-being and workload effects of AI-enabled project work;
- ensure that human responsibility remains clear in AI-supported decision-making;
- develop advanced human-AI orchestration capabilities.

This roadmap should not be understood as a rigid sequence. Organizations differ in maturity, industry context, regulation, data quality, and strategic ambition.

However, the roadmap provides a structured pathway from awareness to scaling and institutionalization.

6.7 Limitations and future research

The study has limitations that should be acknowledged. First, it is based on survey data and therefore captures perceptions and expectations rather than objective future outcomes. Second, the sample is professionally relevant but not statistically representative of all project professionals in Germany. Third, the Generation Z subsample is relatively small, which limits the strength of generational conclusions. Fourth, the study is cross-sectional and does not track changes over time. Fifth, the competence clusters used in the survey provide a structured framework but should be further validated in future research.

Future research should address these limitations. Longitudinal studies could examine how AI adoption and competence requirements actually evolve over time. Comparative studies across countries and industries could identify contextual differences. Qualitative case studies could explore how organizations redesign roles, PMOs, and governance systems in practice. Experimental or quasi-experimental research could investigate which learning formats are most effective for developing AI competence. Further studies should also examine the relationship between AI adoption, well-being, workload, psychological safety, and professional identity in project business.

A particularly important research direction concerns certification and professional standards. Future research should investigate how competence frameworks can integrate AI-related competences without losing the strengths of established project management knowledge. Another promising research stream concerns AI governance in project-based businesses, especially the distribution of accountability among project managers, steering bodies, PMOs, AI systems, and organizational leadership.

6.8 Call for action

The results of this study show that the future of project business will be shaped by AI, but not determined by AI alone. The decisive factor will be how organizations, individuals, and professional associations respond.

Project management associations should update competence standards, certification systems, and professional development pathways now. They should not wait until AI has already reshaped practice beyond the reach of existing standards.

Organizations should move beyond tool experimentation and build AI-enabled project and business capabilities. They need to invest in governance, data, PMOs, learning systems, psychological safety, and role-specific competence development.

Individuals should take ownership of their future professional relevance. Project professionals need to develop AI literacy, data literacy, judgment, leadership, and learning agility. The future role of the project professional will be more demanding, not less.

The call for action is therefore clear: project business must prepare for a shift in roles and competences that is already underway. AI will increasingly take over routine tasks. Human project professionals must take responsibility for direction, judgment, governance, learning, and value creation.

The future of project management will not be secured by defending old routines. It will be secured by developing the competences required to lead AI-enabled project business responsibly and effectively. The time to act is now.

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