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An Hongyun

Master

Al-Farabi Kazakh National University

Almaty, Kazakhstan

THE DISRUPTION AND INTEGRATION OF DIGITAL PROJECT MANAGEMENT WITH TRADITIONAL MODELS

Abstract: Project management has evolved alongside technological advancements, from the Gantt chart in the early 20th century to modern methodologies such as CPM and PERT. However, the rapid rise of digital technologies, including cloud computing, big data, and artificial intelligence, has led to a transformative shift in project management. Digital project management disrupts traditional models by introducing data-driven, highly efficient, and flexible approaches. This study examines the impact of digitalization on project management processes, tools, roles, and culture, highlighting its disruptive effects and integration pathways. While traditional project management methods emphasize structured

planning and control, digital project management fosters agility, collaboration, and real-time decision-making. The study explores how digital technologies reconstruct workflows, innovate management tools, redefine managerial roles, and reshape organizational culture. It also proposes integration strategies, combining traditional principles with digital advancements to optimize efficiency and adaptability. Despite challenges such as rapid technological changes, organizational resistance, and data security concerns, effective strategies—including talent development, organizational restructuring, and enhanced data protection—can facilitate seamless integration. The findings contribute to both theoretical advancements and practical guidance for enterprises undergoing digital transformation. As technology continues to evolve, project management must adapt towards greater intelligence, agility, and human-centered practices to maintain competitive advantages in a dynamic business environment.

Ань Хунюнь

Магистр

Казахский национальный университет имени Аль-Фараби

Алматы, Казахстан

РАЗРЫВ И ИНТЕГРАЦИЯ ЦИФРОВОГО УПРАВЛЕНИЯ ПРОЕКТАМИ С ТРАДИЦИОННЫМИ МОДЕЛЯМИ

Аннотация: Управление проектами развивалось вместе с технологическим прогрессом: от диаграммы Ганта в начале XX века до современных методологий, таких как CPM и PERT. Однако стремительный рост цифровых технологий, включая облачные вычисления, большие данные и искусственный интеллект, привел к трансформационным изменениям в управлении проектами. Цифровое управление проектами разрушает традиционные модели, внедряя подходы, основанные на данных, высокоэффективные и гибкие. В данном

исследовании рассматривается влияние цифровизации на процессы, инструменты, роли и культуру управления проектами, выделяются ее разрушительные эффекты и пути интеграции. В то время как традиционные методы управления проектами делают акцент на структурированном планировании и контроле, цифровое управление проектами способствует повышению оперативности, сотрудничеству и принятию решений в режиме реального времени. В исследовании рассматривается, как цифровые технологии перестраивают рабочие процессы, внедряют инновационные инструменты управления, переопределяют роли руководителей и меняют организационную культуру. В нем также предлагаются стратегии интеграции, сочетающие традиционные принципы с цифровыми достижениями для оптимизации эффективности и адаптивности. Несмотря на такие проблемы, как быстрые технологические изменения, сопротивление организаций и проблемы безопасности данных, эффективные стратегии, включая развитие талантов, организационную реструктуризацию и усиленную защиту данных, могут

способствовать беспрепятственной интеграции. Полученные результаты способствуют как теоретическому прогрессу, так и практическому руководству для предприятий, переживающих цифровую трансформацию. По мере развития технологий управление проектами должно адаптироваться к более интеллектуальным, гибким и ориентированным на человека методам, чтобы сохранить конкурентные преимущества в динамичной бизнес-среде.

Ключевые слова: Цифровое Управление Проектами, Традиционное Управление Проектами, Гибкая Методология, Принятие Решений На Основе Данных, Организационная Трансформация

Introduction

As a systematic management discipline, the development of project management is closely related to technological progress. From the emergence of the Gantt chart in the early 20th century to the birth of the critical path method (CPM) and the program evaluation and review technique (PERT) in the 1950s, project management has gradually formed a traditional model with planning, organization, command, coordination and control as the core. However, with the rapid development of

information technology, especially the rise of new generation information technology such as cloud computing, big data, and artificial intelligence, project management is undergoing a profound digital transformation. Digital project management has emerged and has had a huge impact on the traditional project management model with its advantages such as high efficiency, flexibility, and data-driven.[1] Exploring the subversion and integration of digitalization on the traditional project management model has important theoretical significance and practical value. From a theoretical perspective, this study helps to clarify the impact mechanism of digital technology on various elements of project management, construct a theoretical framework for project management in the digital age, and enrich and develop the project management discipline system. From a practical perspective, this study can provide theoretical guidance for the digital transformation of enterprises, help enterprises improve their project management level and enhance their core competitiveness in the wave of digitalization. This study focuses on the impact of digitalization on project management processes, tools, personnel, culture, etc. Specifically, it will

analyze how digital technology reconstructs project management processes, innovates project management tools, transforms the roles of project managers, and promotes changes in project management culture. On this basis, it explores the integration path of digital project management and traditional models to provide reference and reference for future project management practices.

The disruptive impact of digital project management

The rapid development of digital technology has had a profound impact on traditional project management models, and its disruptiveness is mainly reflected in four aspects: project management processes, tools, personnel roles, and culture.

Traditional project management processes usually adopt linear models, such as the waterfall model, which emphasizes strict phase division and sequential execution. However, this model shows obvious limitations when facing complex and changing needs, such as lack of flexibility and slow response speed. In the digital age, new processes such as agile development and iterative development are gradually emerging. These processes are centered on user needs. Through short-cycle iterative development and continuous delivery, they can quickly respond to changes and

improve project success rates.[2] In addition, the application of data-driven decision-making has further optimized project management processes. Through real-time collection and analysis of project data, managers can make plans, monitor progress and assess risks more accurately, thereby improving the scientificity and efficiency of decision-making.

Although traditional project management tools, such as Gantt charts and spreadsheets, have played a certain role in planning and task allocation, their limitations are becoming increasingly prominent. For example, information islands lead to inefficient team collaboration, and delayed data updates affect the timeliness of decision-making. The emergence of digital project management platforms has effectively solved these problems. These platforms achieve visual management of the entire project life cycle through information integration and real-time sharing. At the same time, with the help of artificial intelligence and big data technology, the platform can provide intelligent resource allocation, risk prediction and performance evaluation functions, significantly improving the efficiency and accuracy of project

management.

In traditional project management, project managers mainly play the role of planners and task assigners, and their core responsibility is to ensure that projects proceed as planned. However, the digital age has put forward higher requirements for project managers.[3] They not only need to have solid project management knowledge, but also need to master new skills such as data analysis, agile thinking and technical understanding to cope with complex and changing project environments. At the same time, the roles of project team members have also changed significantly. The application of digital tools enables team members to work more autonomously and promote project innovation and continuous improvement through efficient collaboration and knowledge sharing.

Traditional project management culture is usually characterized by clear hierarchy and solidified processes, emphasizing strict institutional norms and top-down management. This culture has certain advantages in a stable environment, but it appears rigid and inefficient in the digital age. The transformation of digital project

management culture is mainly reflected in three aspects:

1. More open, encouraging information transparency and cross-departmental collaboration;

2. More inclusive, respecting diversity and innovative thinking;

3. More innovative, advocating data-driven and agile iterative working methods.

This cultural change not only enhances the cohesion and creativity of the team, but also provides a strong guarantee for the successful implementation of the project.

In summary, digital technology has a comprehensive subversive impact on project management processes, tools, personnel roles and culture. These changes not only promote the innovation of project management models, but also provide a new path for enterprises to enhance their competitiveness in the digital age. In the future, with the further development of technology, digital project management will continue to evolve and create greater value for organizations.

Integration path of digital project management and traditional model

Digital project management is not a complete replacement of traditional model, but it achieves complementary advantages and coordinated development through the

integration of concepts, methods, organization and culture.

Traditional project management concepts emphasize goal orientation, risk management and process control. These core concepts still have important value in the digital age. However, facing the complex and changing project environment, it is difficult to meet the needs by relying solely on traditional concepts. Therefore, it is an inevitable trend to integrate digital thinking such as agile thinking and data-driven into project management practice.[4] Agile thinking emphasizes rapid response to changes and continuous delivery of value, which can effectively improve the flexibility and adaptability of projects; data-driven provides scientific basis for decision-making and reduces project risks through real-time data analysis and prediction. Through concept integration, project management can enhance its agility and innovation while maintaining robustness.

Traditional project management methods, such as work breakdown structure (WBS) and Gantt chart, play an important role in project planning and control. However, these methods have limitations in information processing and collaborative

efficiency. The application of digital tools has injected new vitality into traditional methods. For example, combining WBS with project management software can realize automatic task decomposition and resource optimization allocation; using the digital version of the Gantt chart, task progress can be updated in real time and visual reports can be automatically generated. In addition, digital tools can also provide intelligent support for project decision-making through big data analysis and artificial intelligence algorithms, such as risk prediction, resource optimization and performance evaluation, thereby significantly improving the efficiency and accuracy of project management.

Traditional project management organizations usually adopt a hierarchical structure, emphasizing clear division of responsibilities and top-down management. This structure has certain advantages in a stable environment, but it appears rigid and inefficient in the digital age. Digital team building emphasizes cross-functional collaboration and self-organization management, and improves the team's response speed and innovation ability by building a flexible and flat team structure.[5] At the

same time, using digital tools (such as collaboration platforms and knowledge management systems) to strengthen team communication and knowledge sharing can further break down information silos and promote the improvement of team collaboration efficiency. Through organizational integration, project management can enhance its flexibility and synergy while maintaining a clear structure.

Traditional project management culture focuses on process specifications and risk control, which is of great value in ensuring the stable operation of projects. However, in the digital age, over-emphasis on processes and specifications may inhibit innovation and flexibility. Therefore, on the basis of maintaining the advantages of traditional project management culture, integrating open, inclusive and innovative digital culture has become an inevitable choice. For example, by creating a data-driven decision-making atmosphere, team members are encouraged to propose innovative solutions based on data analysis; by advocating agile and iterative working methods, the team's ability to adapt to changes is improved. Cultural integration can not only enhance the cohesion and creativity of the team, but also provide a strong

guarantee for the successful implementation of the project.

In conclusion, the integration of digital project management and traditional models is a systematic project that needs to be promoted in a coordinated manner at the four levels of concept, method, organization and culture. Through integration, project management can fully tap the potential of digital technology while maintaining traditional advantages and create greater value for the organization. In the future, with the further development of technology, this integration will continue to deepen, promoting project management to develop in a more intelligent, agile and humane direction.

Challenges and countermeasures of the integration of digital project management and traditional models

Although the integration of digital project management and traditional models has brought significant benefits to enterprises, it still faces many challenges in practice. To cope with these challenges, targeted countermeasures need to be taken to ensure the smooth progress of the integration process.

Rapid technological updates are one of the main challenges facing digital project

management. The rapid development of emerging technologies such as artificial intelligence, blockchain and the Internet of Things requires continuous iteration and upgrading of project management tools and methods. If enterprises fail to keep up with technological changes in a timely manner, they may lead to backward tools, low efficiency, and even missed market opportunities. Secondly, difficulties in organizational structure and cultural transformation are also a major obstacle in the integration process. Traditional enterprises usually have a hierarchical organizational structure and a solidified management model. This structure is rigid and inefficient in the digital age and is difficult to adapt to the needs of agile and flexible project management. In addition, data security and privacy protection issues are becoming increasingly prominent. With the surge in the amount of data in the project management process, how to ensure the security and privacy of data has become an important issue that enterprises must face.

To cope with the above challenges, enterprises need to start from three aspects: talent training, organizational change and data security. Strengthening digital talent

training is the key to solving the problem of technology update. Enterprises should improve the digital capabilities of project managers through internal training and external introduction, so that they can master the application of emerging technologies and tools. Promoting organizational change is an effective way to break through traditional thinking patterns.[6] Enterprises need to build an agile and flat organizational structure, reduce management levels, and enhance the autonomy and collaboration of teams to meet the needs of digital project management. Finally, establishing and improving data security and privacy protection mechanisms is the fundamental guarantee for dealing with data risks. Enterprises should formulate strict data management policies and adopt advanced encryption technologies and access control measures to ensure the security and compliance of project data.

All in all, although the integration of digital project management and traditional models faces multiple challenges such as technology updates, organizational transformation and data security, by strengthening talent training, promoting organizational change and improving data security mechanisms, enterprises can

effectively respond to these challenges and achieve the coordinated development of digital and traditional models. In the future, with the continuous advancement of technology and the deepening of management practices, the integration of digital project management will become more mature and create greater value for enterprises.

Conclusion

Digital project management has a profound impact on traditional models, and its subversiveness is reflected in process reconstruction, tool innovation, role transformation and cultural change. Through the application of agile development, data-driven decision-making and intelligent tools, project management efficiency has been significantly improved, and flexibility and adaptability have been continuously enhanced. At the same time, the integration of digitalization and traditional models is not a simple replacement, but a complementary advantage achieved through the collaborative innovation of concepts, methods, organizations and culture. This integration not only promotes the evolution of project management theory, but also

provides a new path for corporate practice. In the future, project management will develop in a more intelligent, agile and humanized direction. Intelligence is reflected in the in-depth application of technologies such as artificial intelligence and big data, such as optimizing resource allocation through machine learning and improving communication efficiency through natural language processing. Agility emphasizes rapid response to changes and continuous delivery of value, and improves the adaptability and innovation capabilities of projects through iterative development and cross-functional collaboration. Humanization focuses on the needs and experience of team members, enhances the collaborative experience through digital tools, and creates an open and inclusive working atmosphere.

Future research can focus on the following directions:

1. How to better use artificial intelligence technology to improve project management efficiency, such as developing intelligent risk prediction and decision support systems;

2. Explore the application of digital project management in specific industries or scenarios, such as practice in complex R&D projects or cross-border collaborative

projects;

3. Study the impact mechanism of digital project management on organizational performance and innovation capabilities, and provide theoretical support for enterprise digital transformation.

Through continuous research and practice, digital project management will create greater value for organizations and promote the further development of management science.

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