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AGILE PROJECT MANAGEMENT METHODS BASED ON THE SCRUM METHOD

It is emphasized that the present requires a significant increase in the efficiency of software for IT projects. The analysis showed that agile software development methods have now taken a key place in IT projects. Obstacles to flexible transformation, which mainly concern small and medium-sized enterprises, are considered.

The purpose of the study is defined, namely, to promote the successful implementation of agile project management based on the Scrum method, to study the integration of agile methods into OPI's management processes to promote the formation of an agile organizational culture at all levels, to check the effectiveness of OPI's agile processes of organization and development in adapting to changes in the external environment and optimizing project management processes. A generalization of the experience of implementing flexible transformation for other similar enterprises is carried out.

With the continuous development of information technology, the frequency of iterations of requirements during software development for IT projects has increased significantly. Agile software development has taken a key place in the IT projects of large enterprises, but some small and medium-sized enterprises have faced obstacles to agile transformation without meeting expectations. OPI is a high-tech enterprise controlled by a state-owned enterprise specializing in water informatization and intelligent solutions, 70% of whose revenues come from IT projects, faced the problem of low efficiency of IT projects due to changes in external conditions. In this regard, senior management was forced to plan the implementation of an agile development methodology in the project management process in the software development department.

It is assumed that the study may use a case-based method that tracks, analyzes, and summarizes the process of implementing agile project management by implementing the Scrum method in OPI's software department, including the study of internal company data and interviews with management and project team members.

It is expected that through this research, OPI will be able to successfully apply the Scrum method for project management in the software development department, solve the problem of inefficient implementation of IT projects, and create an agile organizational culture in the company. The project management process will be continuously improved, allowing the company to release better software products,

provide more value to customers, and increase customer satisfaction. In addition, the generalized experience of implementation can serve as an example for other enterprises undergoing a similar agile transformation.

In the context of Ukraine's accelerated digital transformation and industrial modernization, the deep penetration of information technologies is constantly driving intelligent demand in the water sector, creating a wide market space for local software enterprises. The Government of Ukraine has clearly identified water informatization as a priority area of development through policy documents such as the National Digital Transformation Strategy (2020-2024) and the Water Development Vision (2020-2030), promoting technological modernization in the industry through measures such as tax incentives and special funds.

Currently, the latest technologies such as big data and cloud computing, which have mature applications in smart transportation and energy management, are accelerating their penetration into the water management industry, stimulating the intelligent modernization of traditional water management facilities [1]. As a high-tech enterprise [2] in Ukraine, OPI uses a matrix organizational structure, where its software development department is the main unit responsible for comprehensive management from requirements analysis to system delivery. Its Technology Management Center includes agile development teams, a data analysis lab, and a quality assurance department, forming a closed-loop "requirements-development-validation" management system.

Guided by national policies and industry requirements, OPI continues to enhance its core competitiveness through agile transformation [4]. Its "business technology two-way iteration" model, developed on the basis of the SCRUM framework, was validated within the framework of the Smart Water project in the Chernivtsi region, improving the speed of response to demand by 50% and reducing the cost of eliminating defects by 35%. In the future, OPI plans to expand its business into advanced industries such as digital twin water conservation centers and AI-based decision-making, helping Ukraine achieve rapid development from "traditional water conservation" to "smart water conservation".

Among various flexible approaches, the SCRUM method is the most popular, widely used by large Internet and software companies. However, it should be noted that there is a significant phenomenon of misuse of agile methods, as many businesses misinterpret agility as simply "speed" rather than acknowledging that, like all standard development processes, its ultimate goal is to make development manageable and ensure project success [5]. An agile organization based on SCRUM effectively solves structural problems in OPI's software projects.

The new agile structure emphasizes continuous improvement, where team capabilities, culture, and overall quality evolve throughout the project. Replacing the cascade lifecycle with an agile process (iterative development, incremental delivery) allows for faster delivery of high-quality products, shortens turnaround times, and significantly increases customer satisfaction.

The successful implementation of the OPI agile model offers the following important takeaways: Pilot project selection: Choose the first agile project based on four criteria: relevant importance, sufficient visibility, manageable scale and

measurable results; Transition Management: Building an agile transformation team to support process change, ensure seamless implementation, and align with the organization's goals.

Future research and practical use of the case project are expected. While this case study confirms the effectiveness of agile methodologies (driven by senior management and the Change Committee), the implementation of agile methodology as the core management culture requires further efforts.

The following key areas for research can be highlighted: agile knowledge domains: deepening research on scope, quality, risk and performance management within SCRUM, integrating the fundamentals of the Project Management Body of Knowledge (PMBOK) to develop agile-specific knowledge areas, which will allow the use of agile practices for large and complex projects; agile application management: For large projects consisting of several sub-projects, multi-team SCRUM collaboration should be explored.

Because agile methodology emphasizes small, focused teams, OPI should learn how to coordinate multiple SCRUM teams to implement complex programs, maximizing the value of agile methodology at scale. Thus, this research lays the foundation for the agile transformation of OPI, but continuous improvement and expansion of agile practices will be essential to support improvements and adapt to changing project requirements.

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