IMPLEMENTATION OF AGILE PROJECT MANAGEMENT METHODS BASED ON THE SCRUM METHOD

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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, it was advisable to plan the implementation of an agile development methodology in the project management process in the software development department.

The purpose of this study is to promote the successful implementation of agile project management based on the Scrum method from OPI, to solve the problem of low efficiency in the implementation of IT projects, to study the integration of agile methods into the company'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 management processes projects, as well as a generalization of implementation experience for use as a guide for the flexible transformation of other similar enterprises. The study is devoted to the implementation of agile transformation based on the Scrum method in project management of the OPI software development department and its practical significance, namely the study of the effect of implementing the Scrum agile development method in the project management process of the OPI software development department. The object of this study is OPI, as well as the IT project management process of its software development department and the practice of agile transformation through the implementation of agile software development methods, in particular, the Scrum method. It is assumed that the study may use a case-based method that tracks, analyzes, and summarizes the process of implementing agile project management through the implementation of 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. According to statistics, the market size of the country's software industry in 2024 exceeded $2.5 billion, with solutions related to water informatization accounting for 18% of this total, making it one of the fastest growing market segments. Currently, the latest technologies, such as big data and cloud computing, which have mature applications in smart transport 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. In recent years, OPI has reduced project implementation cycles to 60% from traditional models and increased customer adoption to 92% thanks to the implementation of DevOps continuous integration toolchains, establishing itself as a technological leader in the water informatization sector of Ukraine [3]. 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 successful implementation of the flexible OPI model offers the following important findings:

1). Pilot project selection: Selection of an agile project based on four criteria: relevant importance, sufficient visibility, manageable scale, and measurable results;

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

The following key areas for research can be highlighted:

1). Agile Knowledge Domains: deepen research on scope, quality, risk and performance management within SCRUM, integrate the fundamentals of the Project Management Body of Knowledge (PMBOK) to develop agile-specific knowledge;

2). Agile Application Management: For large projects consisting of several sub-projects, multi-team SCRUM collaboration should be explored.

Thus, this research lays the foundation for OPI's agile transformation, but continuous improvement and expansion of agile practices will be essential to support improvements and adapt to changing project requirements.

References

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