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MANAGING UNANTICIPATED CHANGES BY ADOPTING AGILE PROJECT MANAGEMENT REQUIREMENTS: A CASE STUDY OF A LARGE-SCALE PROJECT IN BANKING

Fahimeh Mohebi [1,*]

[1] *Department of Open Banking Solutions, Dotin Co., Tehran, Iran.*

ABSTRACT

Unanticipated changes can have profound impacts on the organization and its stakeholders, requiring rapid and effective responses. One of the common consequences of unanticipated changes is that the organization may have to deal with new large-scale projects that were not part of its original plans or priorities. Project managers need to be able to anticipate and respond to these uncertainties by predicting the possible outcomes of their decisions and actions. Predicting the possible outcome is a process of estimating the likelihood and impact of various scenarios that may occur during the project lifecycle. It helps project managers to identify risks, opportunities, and alternatives, as well as to plan, monitor, and control the project effectively. This paper aims to explore the importance of predicting the possible outcome in the era of uncertainty in project management as well as understanding the technical challenges ahead. We review the literature on the concepts, methods, and tools for predicting the possible outcome, and discuss the benefits and challenges of applying them in practice. We also provide some recommendations and suggestions for future research and development in this area.

KEYWORDS: Project Management, Change Management, Uncertainty, Agile Methodology

1. INTRODUCTION

Organizations today face unprecedented levels of change and uncertainty, driven by factors such as technological innovation, market disruption, global competition, regulatory shifts, and social movements. These changes pose significant challenges and opportunities for organizational performance, strategy, and culture. However, not all changes are anticipated or planned by the organization. Some changes are unanticipated or emergent, meaning that they arise unexpectedly or spontaneously from the internal or external environment. Examples of unanticipated changes include natural disasters, pandemics, cyberattacks, social unrest, or sudden shifts in customer demand or competitor behavior.

Unanticipated changes can have profound impacts on the organization and its stakeholders, requiring rapid and effective responses. However, traditional change management models and methods may not be sufficient or suitable for dealing with unanticipated changes. Traditional change management often assumes that change is

* *Corresponding Author, Email: f.mohebi@dotin.ir*

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predictable, linear, and controllable and that it can be managed through a series of predefined steps and recipes. However, unanticipated changes are often unpredictable, nonlinear, and uncontrollable, and they require adaptive and emergent approaches to change management. Moreover, traditional change management often focuses on the technical aspects of change, such as processes, systems, or structures, while neglecting the human aspects of change, such as emotions, behaviors, or culture.

This paper aims to propose a framework for agile project management that can help organizations cope with changing requirements, priorities, and expectations from stakeholders. The paper also provides practical guidelines and examples of how to apply the framework in different contexts and scenarios.

In dynamic and changing business environments, situations occur in which the organizational structure faces transformations and changes, and as a result, new projects are referred to as work teams. However, these changes and challenges can bring ambiguities that are gradually transferred to a higher level of complexity and responsibility. In such a situation, effective planning and action is very important. Effective planning and action means thinking holistically and conducting careful analysis to identify and resolve gaps and ambiguities, recruit recruits, and consider testing and feedback from external customers. In this paper, a lesson learned is presented in which the way to deal with a large and problematic project with a large number of complications is examined by the open banking team in a large banking software company in Iran. This project was assigned to the team due to a sudden change in structure and had to be completed within a limited time frame.

The paper is organized as follows: Section 2 reviews the literature on unanticipated change and its implications for organizational change management. Section 3 describes the case study and presents the challenges of the project and the measures taken by the team management to resolve problems. Section 4 discusses the benefits and results of the response measures and concludes the paper with some suggestions for future research and practice.

2. Literature Review

Organizational change is a constant phenomenon in the contemporary business environment, driven by various forces such as technological innovation, market disruption, global competition, regulatory shifts, and social movements (Pettigrew et al., 2001). However, not all changes are anticipated or planned by the organization. Some changes are unanticipated or emergent, meaning that they arise unexpectedly or spontaneously from the internal or external environment (Khaw et al., 2023). Examples of unanticipated changes include natural disasters, pandemics, cyberattacks, social unrest, or sudden shifts in customer demand or competitor behavior (Uwujaren, 2017).

Unanticipated changes can have profound impacts on the organization and its stakeholders, requiring rapid and effective responses. However, traditional change management models and methods may not be sufficient or suitable for dealing with unanticipated changes. Traditional change management often assumes that change is predictable, linear, and controllable and that it can be managed through a series of predefined steps and recipes (Beer & Nohria, 2000). However, unanticipated changes are often unpredictable, nonlinear, and uncontrollable, and they require adaptive and emergent approaches to change management (Burnes & Jackson, 2011). Moreover, traditional change management often focuses on the technical aspects of change, such as processes, systems, or structures, while neglecting the human aspects of change, such as emotions, behaviors, or culture (Armenakis & Bedeian, 1999).

One of the common consequences of unanticipated changes is that the organization may have to deal with new large-scale projects that were not part of its original plans or priorities. These projects may involve developing new products or services, entering new markets or segments, acquiring new capabilities or resources, or transforming existing operations or practices. These projects may also involve multiple stakeholders across different functions, levels, locations, or organizations. Managing these projects can be challenging and complex, as they may entail high levels of uncertainty, ambiguity, interdependence, and dynamism (Shenhar & Dvir,

2007). Therefore, there is a need for a new perspective and practice on how to manage unanticipated change in the organization and deal with new large-scale projects. One of the possible solutions is to adopt agile project management methods that can help organizations cope with changing requirements, priorities, and expectations from stakeholders. Agile project management is a flexible and iterative approach that emphasizes customer value, collaboration, feedback, and adaptation (Highsmith & Cockburn, 2001).

Agile project management can help organizations deal with unanticipated change by:

- Delivering value incrementally and frequently through short development cycles called sprints
- Involving customers and stakeholders in project planning and review through user stories and backlog management
- Empowering self-organizing and cross-functional teams to make decisions and solve problems
- Using various tools and techniques to monitor and control project progress and quality such as burndown charts, and daily stand-up meetings
- Embracing change as an opportunity for learning and improvement through retrospectives

However, agile project management also has some limitations and challenges that need to be addressed. Some of these are:

- Lack of alignment between agile project teams and the organizational culture or structure that may be more rigid or hierarchical
- Difficulty in scaling agile methods to large or complex projects that may involve multiple teams or dependencies
- Resistance or skepticism from some stakeholders who may prefer more traditional or formal project management approaches
- Lack of clarity or consistency in defining project scope or success criteria that may lead to scope creep or customer dissatisfaction

These challenges can be overcome by adopting a hybrid approach that combines agile methods with other project management frameworks such as Waterfall or PMBOK. A hybrid approach can help balance the flexibility and responsiveness of agile methods with the stability and predictability of other methods. A hybrid approach can also help customize the project management process according to the specific needs and characteristics of each project (Stettina & Hörz, 2015).

Project management is the process of planning, executing, and controlling a unique set of interrelated tasks with a defined outcome. However, project management is often subject to various uncertainties that can affect the project's scope, schedule, budget, quality, or stakeholder satisfaction. Uncertainties are factors that are unknown or unpredictable at the time of project initiation, and they can arise from internal or external sources, such as technological innovation, market disruption, global competition, regulatory shifts, or social movements (Drosg, 2007). Uncertainties can pose significant challenges and opportunities for project managers and their teams, as they may require rapid and effective responses to cope with changing requirements, priorities, and expectations (Lechler & Edington, 2013). Therefore, it is important for project managers to predict the possible problems that may arise from uncertainties and to prepare contingency plans to mitigate or exploit them. Predicting the possible problems can help project managers to:

- Identify and assess the potential risks and opportunities associated with uncertainties and their impacts on the project objectives and deliverables

- Develop and implement appropriate strategies and actions to avoid or reduce the negative effects of uncertainties or to enhance or capture the positive effects of uncertainties

• Communicate and collaborate with the project stakeholders to inform them about the uncertainties and their implications and to solicit their feedback and support

• Monitor and control the project progress and performance and adjust the project plan and resources as needed to accommodate the uncertainties

• Learn and improve from the experience of dealing with uncertainties and to incorporate the lessons learned into future projects

Predicting the possible problems in the era of uncertainty in project management can help project managers increase their agility, flexibility, and resilience in managing complex and dynamic projects. It can also help project managers create value for their organization and customers by delivering successful project outcomes despite the uncertainties.

In the next section, we describe a case study of a banking software provider that deals with a large and problematic project with a large number of complications in 2018. This project was assigned to the modern payments team of the company due to a sudden change in the structure of the organization and had to be completed within a limited time frame. By presenting this case study, we can examine the important lessons learned from the process of facing uncertainties in the context of sudden organizational changes and the complexities of projects assigned to technical teams and provide principles for the success of other companies in a similar situation.

3. CASE STUDY

Our case study is about a large software provider company in the banking sector of Iran. This company specializes in providing banking solutions at all levels of processes, including transaction management, payment gateways, and data analytics. The problem is related to a sudden change in the organizational structure of the company where some teams found a new structure and mission, and as a result, the assignment of projects changed. In this section, we describe the challenge the modern banking team was facing during this critical time and present the solutions that they provide to tackle the challenges.

3.1. Problem Statement

In 2018, the company's modern payment team was involved in performing a gap analysis and localization phases of the Internet payment portal system and was in a stable condition. Suddenly, the organizational structure changed, and a new project with a large scale was Assigned to the Modern Payments Team. After the project assignment, the team name changed to "Open Banking". No gap analysis was conducted for this designated project, however, the employer bank received assurance that all existing bank services would remain accessible to the employer at no additional cost following the transition to the new system. Furthermore, the bank's customers were assured that they would not experience any noticeable changes. While the architecture of this project was new, there was no knowledge of its dimensions and everything was shrouded in uncertainty. On the other hand, the previous commitments to another employer, i.e., the delivery of 20 web services every three months, should have remained in force and should have been covered at the same time according to the provisions of the contract and the predetermined schedule. Therefore, the open banking team with a very small number of human resources (about 4 people) had to fulfill the remaining obligations of the contract with another bank while completing the new project. The great amount of uncertainty and the high volume of work in the conditions of uncertainty had increased the difficulty of doing the project.

3.2. The Challenges

Considering that the time pressure to fulfill the obligations was high and the possibility of risk was low, a possible and quick solution was that the open banking team manager was directly present at the location of the client's bank and talked to the owners of the services, providing the necessary information about the features and requirements. There were two main problems encountered on site. First, the resistance of the responsible

forces and service developers, who were worried about losing their jobs, and second, the problem of not believing in doing the work on the part of the service owners due to previous records of failure in similar projects.

Meanwhile, the engagement of other work teams within the organization had hindered their ability to adequately prepare for this unexpected project. As a result, due to the novelty of the nature of the project and the related team, proper and principled interaction was difficult. Also, due to the existing structures and the short period to fulfill the obligations and due to the uncertainty and ambiguity in the implementation, there was always the concern that the identification of some requirements would be neglected. Since this project was of high sensitivity, the presence of the smallest defect would have irreparable consequences and it should be implemented through effective solutions. In addition, it was not possible to carry out a large number of changes and localization related to the mentioned project by a team with a small number of people. Another significant obstacle that needed to be addressed was the seamless migration of data without causing any noticeable alterations to the user interface of the associated web service. Consequently, the employer had to be provided with reassurance to alleviate any concerns. Project assignment challenges are categorized and presented in Fig. 1.

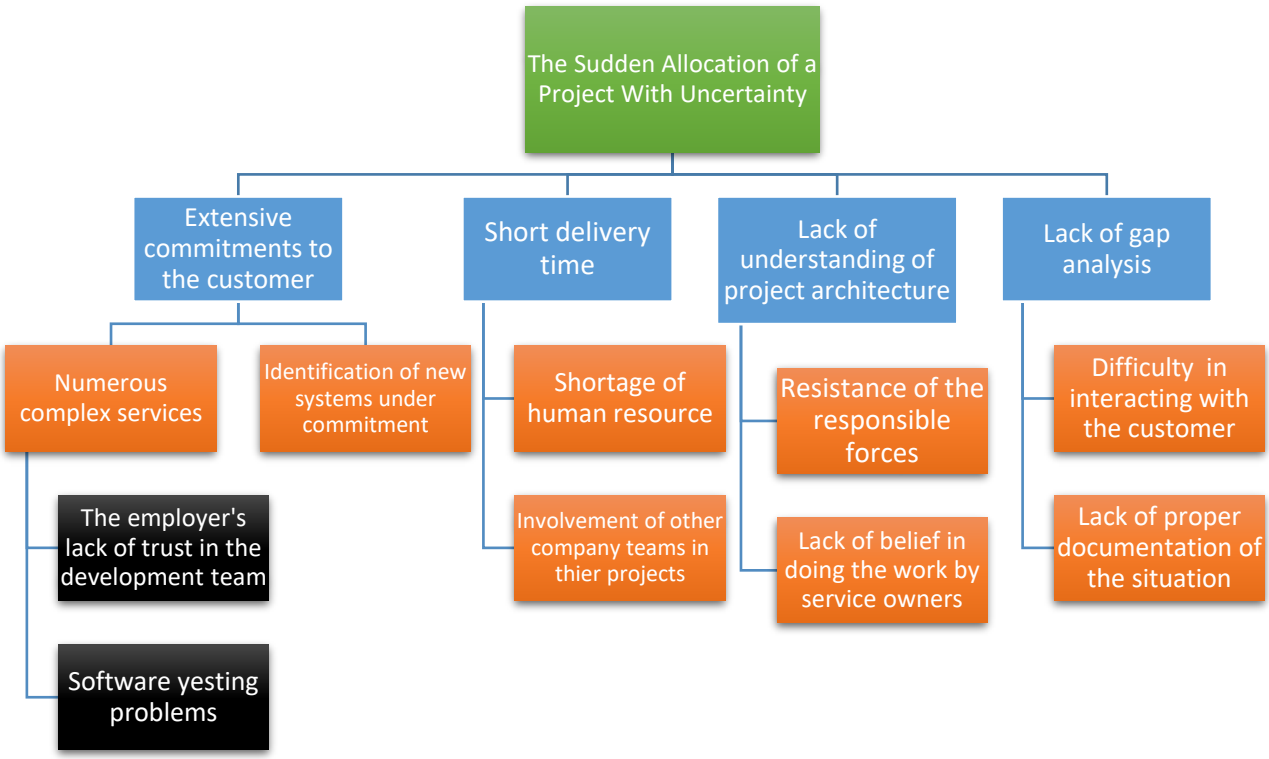

Fig 1. Problems and dilemmas caused by the sudden assignment of the project

3.3. The impact of unanticipated changes in planning change

Once the team's decisions were implemented, the specifications of the services were obtained by running them on-site and recording the requirements. This work was done during a process of extracting and documenting knowledge in a completely traditional way and by recording specifications in sheets, because the workload was high, and it was not possible to hold formal meetings. During this process, it became clear that there were some services and customers that were not considered in the initial requirements.

In such a situation, to prevent a crisis, the technical leader of the team was able to understand the architecture and master the project structure with a strong system vision and mastery of the system architecture during the gap analysis phase.

At the same time, with minimal effort and time, the infrastructure of the open banking unit was upgraded to cover the requirements of the new web services. On the other hand, the analysis specialists also followed the requirements from within the bank system and provided the necessary feedback.

During the interaction of the open banking work team with other work teams to face the challenges, effective methods of creating empathic communication were used, which was a great way forward.

3.4. The Solutions

Considering the many mentioned problems, the decisions made about being on-site and dealing with the service owners were implemented, and the specifications of the services were obtained through their implementation on-site and recording of the requirements.

This work was, in fact, the process of extracting and documenting knowledge, which was done in a completely traditional way by recording specifications in sheets, because the workload was high, and it was not possible to hold formal meetings. In these transactions, it became clear that some services and customers have been neglected, among which we can mention the very large system of registration and implementation of the process of buying and selling the whole country's flour. This system supported very high amounts and high volume of transactions. The sensitivity of this system was so high that even a one-hour outage could lead to bakers' protests and unexpected disturbances.

In such a situation, to prevent the occurrence of a crisis, the technical leader was able to understand the architecture and dominate the project structure with a strong system vision and mastery of the system architecture during the gap analysis phase.

At the same time, with minimal effort and time, to cover the requirements of new web services, upgrading the infrastructure of the open banking unit should be on the agenda. On the other hand, the analysis specialists also followed the requirements from within the bank system and provided the necessary feedback. Also, the challenge of establishing the interaction of the open banking work team with other work teams was solved to an optimal extent by using effective methods of creating empathic communication.

To solve the problem of the number of people involved in the team, a decision was made to recruit and train new personnel, and finally, during the process of recruitment and training, the size of the team increased tenfold during the implementation of the project.

Finally, to reassure the employer in the area of not making changes to the web service from the customers' point of view, some customers were selected - under interaction with the employer - and the open banking team designed the test phase just for them. Conducting the testing phase with these customers was very difficult, as the open banking team had to individually contact them, allocate resources, provide the test platform, and generate test data.

In particular, it was very troublesome to prepare the test data for the customers, because the format of the test data in the company was different from the data in the customers' system. Some customers were also using old platforms and these platforms were identified and covered in the testing process. The stages of overcoming the unforeseen challenges of the assigned project are shown in Fig. 2.

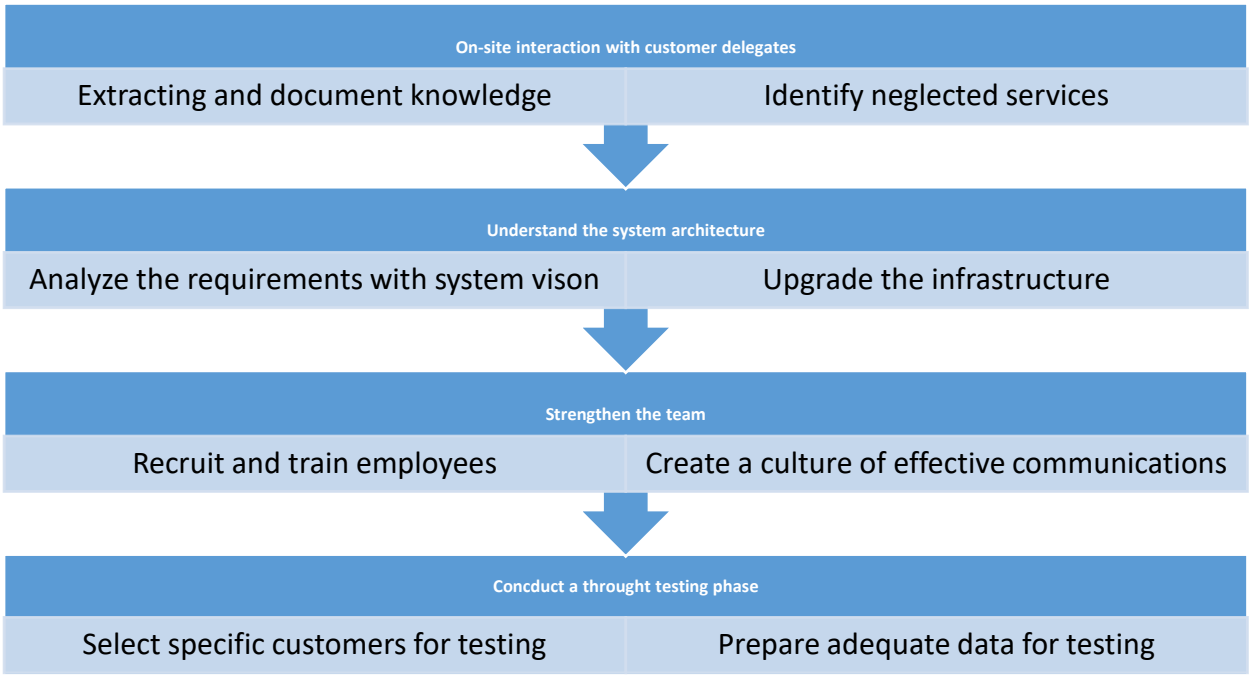

Fig. 2 Steps to overcome the uncertainty of the project

3.5. The outcomes

The rapid growth of a company in an industry can cause a rapid and sudden change in the organizational structure and the emergence of problems such as parallel work and lack of integration. To avoid such crises, as mentioned above, senior management should closely monitor the structure and interrelationship of departments so that harmonious growth can be achieved in all elements of the organization.

In the upcoming experience, an effort was made to not sacrifice the quality of work in the mentioned changes and developments and to strengthen the infrastructure and standard delivery despite the limitations and high volume of work. In addition, special attention was paid to the correct interaction and the use of effective communication tools to establish intra-organizational cooperation and coordination as one of the undeniable components in the success of team-oriented projects. As a result of these actions, the software that was written in this project is currently considered one of the most powerful software with many customers in the country's banking system.

4. CONCLUSION

Unanticipated changes are changes that occur unexpectedly or spontaneously from the internal or external environment. Traditional change management models and methods may not be effective for dealing with unanticipated changes, as they assume that change is predictable, linear, and controllable and that they focus on the technical aspects of change rather than the human aspects. Therefore, organizations need to adopt adaptive and emergent approaches to change management that can cope with the unpredictability, nonlinearity, and uncontrollability of unanticipated changes, and that can address the emotional, behavioral, and cultural aspects of change. In this paper, we presented a case study of a crisis that happened as a result of sudden changes in the organization and the allocation of a large project with multiple dimensions of uncertainty. The project involved implementing open banking web services for a company in the banking industry. We described the challenges, solutions, and outcomes of the project.

The project team faced several challenges, such as unanticipated changes, high workload, lack of integration, and customer satisfaction. To overcome these challenges, the team used various strategies, such as:

- Extracting and documenting knowledge from the service owners on-site
- Having a strong system vision and mastery of the system architecture

- Upgrading the infrastructure of the open banking unit
- Following the requirements from within the bank system and providing feedback
- Creating empathic communication with other work teams
- Recruiting and training new personnel
- Conducting the testing phase with selected customers
- Preparing the test data for different platforms

The team also paid attention to the quality of work, the infrastructure and standard delivery, and the intra-organizational cooperation and coordination. As a result, the project was successful, and the software became one of the most powerful in the country's banking system.

Some possible future research directions for dealing with unanticipated changes in project management are:

- Exploring the role of organizational culture and leadership in fostering organizational change capabilities (OCC), which are the abilities of an organization to anticipate, initiate, and implement changes in response to dynamic environments.
- Examining the psychological and behavioral factors that influence individuals' reactions to unanticipated changes, such as emotions, attitudes, beliefs, coping strategies, and resistance.
- Developing and testing new methods and tools for managing uncertainty and risk in project planning and execution, such as using ranged estimates, contingency buffers, data-driven predictions, and agile approaches.

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