

## Major Factor of Disruptions in IT Projects in Public Companies

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**Abstract:** *Since 1997, a North African government has invested significantly in modernising a key public sector company as part of broader public sector upgrades. This company launched numerous IT-based projects to digitise paper-based services, aiming to expand services and improve quality. However, these numerous IT projects have led to issues such as delays, cancellations, over budgets, and dissatisfaction among staff and clients. This study, involving 30 experienced project developers and engineers in the company's IT department, identifies key causes of project disruptions. The major disruption factors revealed in the study include the absence of a business plan, inadequate documentation, unclear quality standards, ineffective risk management, and human resources management issues. In the end, the implications of these findings for the project manager to improve IT project management standards in the public sector are addressed.*

**Keywords:** *IT Projects, project disruptions, questionnaire, project manager*

### 1. Introduction

The article "Managing IT Projects in Public Companies: Case Study" [1] addresses that stakeholders from various backgrounds have different viewpoints on what defines successful project management. This article claims that due to their particular interests, some people may view an IT project as successful while others may view it as a failure, particularly if there aren't any established or commonly acknowledged key performance indicators. In public sector projects, there are usually more stakeholders than in the private sector because the issue is much more prominent [2]. The initial background of this article mentioned the government of North African countries launched an ambitious program of sector policy reforms for both public sector and private sector to improve performance of both postal and financial services delivered by post offices. It is clear from the introduction of the article

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that reforms were started to upgrade postal services via expanded use of modern IT as one of its objectives to achieve sustainable development.

The authors state in their article which the development of a broad range of information technology-based postal services and the growth of information technologies will boost the competitiveness of the economy, expand connections to global markets, and provide new business prospects for both rural and urban locations. In particular, the administration of that nation's postal services has set three goals: enhance customer satisfaction, boost productivity, and improve service quality. [1] mentioned in their article that a variety of new IT projects that have been launched in recent years based on information has been obtained from the company to:

1. Computerised and updated the existing paper-based services given through its post office.
2. Provide new items with the aim of expanding the scope of services offered to meet developing and existing consumer demands.

Regarding the idea and program that has been launched, employees acknowledge that, despite having sufficient technical skills, difficulties significantly affect their performance, causing them to underestimate their efforts and limit their productivity. Based on the findings in this article, many stakeholders agree that there are serious issues with IT project management. The author has chosen a post positivist method for their article research methodology and questions are posed to compare the mentioned scopes with existing IT department practises. As a result, being post-positivist and constructive implies utilising both qualitative and quantitative methodologies to complete this research. With three predetermined choices (agree, do not agree and do not know) that implied by the author for the investigation in this study enable respondents to state their opinion easily instead of explaining.

Accordingly, members of the Information Technology Department who are responsible for implementing new projects and planning for the future of IT are the focus respondent for them in this research study such as managers, engineers and developers. Following their briefing on the project, 30 IT experts agreed to take part. They represented almost fifty percent of the company's IT specialists. There were 24 questions in the questionnaire, which were categorised into the following five scopes:

- vision clarity (6 questions)
- time and cost management (4 questions)
- quality management (6 questions)
- risk management (3 questions)
- human resources management (5 questions)

Based on the result of this research study, the author has determined five major causes of disruption in IT Projects:

1. Lack of Clear Vision & Business Plan.
2. Poor Documentation.
3. Quality Management Issue.
4. Risk Management Challenges.
5. Human Resources Management Issue.

The action of identifying the major causes helps project managers to cater back to their project and improve their project outcomes and deliver value to their clients. This section mainly discusses the background, issues and methodology that used in the case study article. In the next section, the finding issue or known as major factor of disruptions in IT projects are criticised and relate to the Project Management Body of Knowledge area to discuss how project managers handle this issue.

## 2. Major Factor of Disruption in IT Projects

### 2.1 Lack of Clear Vision and Business Plan

From the case study provided, responses show that 30% of employees reported that IT projects did not have a clear objective from the beginning of the project [1]. Thus, one of the main causes of IT project failure is project scope management, or rather, the absence of it. Effective project management is based on clearly defining what is and is not included in the project [3]. The lack of a clear vision and business plan in the context of project scope management, according to the Project Management Body of Knowledge (PMBOK), signifies a situation where the overall project goal and strategic plan are not clearly stated or defined. In such circumstances, there is often a lack of clarity about the project goals, expected outcomes, limitations, and compliance with the business goals of the company. A lack of this vision and market research studies could lead to consumers rejecting new products. Moreover, most project teams did not receive documents outlining the features of the product or service at the outset of the project [1].

Aside from that, responses from the vision clarity questionnaire show that 73% of respondents said that the alteration in project content was never documented, which leads to confusion and miscommunication about achieving project goals [1]. It becomes challenging for the project manager and team to fully understand the scope and objectives of the project. To elaborate further, this lack of clarity can manifest in various ways, including inadequate or ambiguous project goals. Addressing this issue requires a structured approach involving stakeholder engagement, the development of a comprehensive project charter, a focus on requirement gathering and analysis, and the creation of a project business case. These steps are crucial for achieving successful scope management within the PMBOK framework, ensuring that the project is well-defined and adheres to established organisational objectives.

A project manager must understand the importance of project scope, which indicates the processes that guarantee all the required work is included in the project [3]. According to the PMBOK, project scope management has six processes:

1. Plan Scope Management
2. Collect Requirements
3. Define Scope
4. Create WBS
5. Validate Scope
6. Control Scope

During plan scope management, the project manager needs to actively involve stakeholders in collectively developing a clear vision and a well-rounded business plan. When a precise business plan is lacking, the project manager should utilise iterative approaches during the requirements collection process to encourage the continuous communication for the gradual elicitation and refinement of the project requirements. Then, the project manager should involve stakeholders extensively during the definition of scope process to guarantee a mutual understanding of project boundaries and deliverables. Despite a lack of clear vision, the project manager can utilise collaborative methods during the WBS process by dividing the project into manageable elements with the input of essential stakeholders. During the validation scope process, the project manager should conduct regular evaluations with stakeholders to verify that delivered outcomes align with expectations. A project manager needs to handle changes without a distinct business plan to set up a reliable change control board and implement an organised process for assessing and approving alterations to the scope. In summary, by adopting this step, the project manager can overcome the challenges posed by the absence of a clear vision and business plan within the PMBOK's project scope management processes. Therefore, it will contribute to successful scope management and the overall project's success.

## 2.2 Poor Documentation

The Project Management Body of Knowledge (PMBOK) highlights the essential importance of thorough documentation throughout the project life cycle in the setting of insufficient documentation. Insufficient documentation can result in misunderstandings, lost knowledge, and a lack of historical context for initiatives in the future, all of which greatly increase the likelihood of project failure. Effective project documentation is essential to successful project management, according to PMBOK principles. Successful project outcomes depend on effective project time and cost management. Recent research, however, reveals serious flaws in an organisation's time and cost management procedures, highlighting possible issues that could cause delays, failure, or disruption of projects. PMBOK emphasises several major features of poor documentation:

### 1. Unclear Timeframe and Budget:

From the questionnaire in time and cost management scope, regarding setting a schedule for it and estimates how much money it will cost to reach its goals. In the time and cost management scope question, project management is complicated by unclear project initiation timeframes and budgets, according to 27% of respondents. Inconsistencies can cause inefficient resource allocation and timeline management. Without a clear project timeline, tasks may overlap or delay, causing budget overruns. Lack of budget clarity can also make it hard for project managers to make informed decisions during execution [4].

### 2. Insufficient Project Stage Division

Practice of breaking projects into stages and manageable tasks in order to provide reasonable estimates of duration and cost in advance of system development, as indicated in question 8 in time and cost management scope, 30% of respondents represent a major project management issue. Without a structured approach to project stage breakdown and time and cost estimation, project execution lacks clarity and control. Project teams may struggle to coordinate, track progress, and make informed decisions without these clearly defined project phases. Lack of segmentation can lead to project delays, resource misallocation, and budget overruns.

### 3. Inability in Tracking Time and Cost

In regard to issue time and cost management in question 9, it is essential for the project manager to have the capability to consistently monitor and analyse the expenses spent by the staff, while also being able to estimate the remaining duration until the project's completion. According to the responses provided by the other 30%, one of the main challenges to effective project management is the intricacy of monitoring and controlling expenses and time. When project managers struggle to manage budget and schedule, delays and cost overruns may occur. Project teams may struggle to identify and resolve issues if they cannot closely monitor work progress. Unexpected schedule modifications and additional expenses are possible results of this circumstance, which could ultimately harm the project's usefulness and success [5].

### 4. Lack of Documentation of Learned Lessons

Based on the findings of question 10, it was observed that 80% of respondents disagreed, pointing out a major flaw in the way lessons learned about managing project time and budget were written down when the project was over. A major weakness in project management practices, is the lack of documentation of lessons learned regarding project time and budget management respondents. The organisation's capacity to learn from previous projects is limited if important insights and experiences gained during and after project completion are not recorded and preserved. This shortcoming makes it difficult to avoid recurring problems and to maximise project management techniques. If lessons are not recorded, they may be forgotten, which will impede future learning and development.

Using PMBOK principles to address the issue of insufficient documentation in project management entails applying a systematic and structured strategy. PMBOK highlights several key aspects that can be used to improve documentation practises:

- Lesson learned.
- Change control.
- Project Scope.
- Communication documentation.

In order to address the issue of poor documentation, it is essential for a project manager to have an in-depth understanding of the principles outlined in the Project Management Body of Knowledge (PMBOK). First and foremost, it is important to acknowledge the significance of documenting lessons learned at different phases of a project. By gaining this valuable understanding, the project manager can effectively cultivate a culture of continuous improvement within the team, utilising previous experiences to enhance future results. Organisations have the ability to make use of the combined knowledge of their teams, prevent repetition of errors, and enhance the efficacy and achievement of their project management practises by fostering a culture that prioritises learning and the exchange of knowledge [6].

Moreover, the utilisation of the PMBOK's focus on thorough documentation in change control processes ensures that the project manager can establish open and dependable change management practices. The recognition of the significance of thorough documentation in defining project scope allows the project manager to effectively engage with stakeholders, encouraging collective knowledge and minimising scope-related difficulties. Implementing the communication plan guidance provided by the Project Management Body of Knowledge (PMBOK) ensures that the project manager can facilitate effective and timely distribution of information, thereby enhancing overall project communication. In brief, a project manager who owns a deep knowledge of PMBOK (Project Management Body of Knowledge) concepts is well-equipped to carry out reliable documentation practices, thereby minimising the potential risks associated with poor documentation and effectively guiding the project towards successful outcomes.

### 2.3 Quality Management Issue

According to the Project Management Body of Knowledge (PMBOK), quality management is important in IT project management since it ensures that projects fulfil the necessary requirements. Project quality management is the process of ensuring and controlling quality in all project activities and inputs by quality assurance and quality control methods, where project quality is tested and reviewed on a continuous and regular basis [7].

From the findings of the study from the question in the quality management scope based on the article "Managing IT Projects in Public Companies: A Case Study,". Firstly, 60% of respondents said that the project has insufficient ongoing evaluation and documentation. The lack of ongoing evaluation and documentation is closely related to the lack of quality planning. As part of the project quality planning process, it is critical to include ongoing evaluation and documentation. In this way, project members can maintain a high level of quality throughout the project. Other than that, 67% of respondents said that there is insufficient use of quality assurance reports and checklists. The insufficient use of quality assurance can lead to a lack of visibility and oversight, making it difficult to track and address quality issues. Quality assurance reports provide an in-depth overview of the quality-related measures carried out during the project, and team members can maintain consistency, measure progress, and guarantee that quality requirements are fulfilled using checklists [8].

Lastly, two-thirds of respondents claimed there was a lack of quality control and monitoring during project execution. As a result, no corrective actions were taken to address issues with quality standards,

indicating a significant gap in the quality management scope. In brief, the effectiveness of a project is based on cautious and adaptive project monitoring. This process enables project managers to collect crucial data, empowering them to make informed decisions [9]. These three highlighted issues related to quality management can be solved through the PMBOK project quality management process.

According to the PMBOK, there are three main processes in project quality management that can be used to solve the issues:

1. Quality planning
2. Quality assurance
3. Quality Control

Before the project is executed, the project manager should identify quality standards that are relevant to the project planning. Applying quality planning at the start of projects to address the project scope, project description, standards and rules, and potential outcomes of the project This approach can lead to improved project outcomes and enhance customer satisfaction. Next, in order to avoid the insufficient use of quality assurance reports and checklists, The project management members can perform quality assurance by executing the quality plan and making sure that the project is meeting the defined quality standards. By applying quality assurance, you can identify and address any issues or deviations from the plan, ensuring that the project is on track and delivering the expected level of quality, which helps in improving project performances and reducing risks. To solve the lack of quantity control, the project manager should focus on monitoring and verifying that the project deliverables meet the specified quality requirements. By implementing quality control, you can catch any defects or issues early on, ensuring that the final product or service meets the desired level of quality. This results in reducing rework, improving customer satisfaction, and enhancing the overall success of the project.

#### 2.4 Risk Management Challenge

In the context of IT project management within public companies, the risk management issues covered in the 2014 Journal of Engineering, Project, and Production Management study "Managing IT Projects in Public Companies: A Case Study" [1], are crucial. These difficulties include the lack of an early risk assessment plan, a basic flaw in project planning and the ensuing possibility of suffering a large loss of time. Of those surveyed in the Risk Management domain, 60% indicated that not all possible project-disturbing events had been adequately assessed prior to and during project execution. Surprisingly, 23% of participants were not aware of this type of communication. Two-thirds of the respondents said that parallel project risks were neglected, and an average of 18.67% of employees believed that the organisational culture did not encourage taking risks when starting a new project. A common lack of initial risk assessment strategies, ongoing risk assessments, and efficient channels of communication between project teams is shown by the lowest average agreement rate in this area.

The Project Management Body of Knowledge (PMBOK) and other established project management standards are closely linked to these problems, which emphasises how important it is for public companies to proactively address risk management in order to ensure the successful completion of IT projects and to reduce disruptions and resource losses.

The study indicated that the public organisations' inability to use an efficient initial risk assessment strategy significantly impacted their capacity to manage IT projects. These organisations were effectively navigating their IT efforts without a clear path for identifying and managing possible risks and vulnerabilities because they lacked a systematic and thorough risk assessment methodology. Projects were exposed to unforeseen difficulties, problems, and uncertainties due to a lack of proactive risk management, which might have been avoided or reduced with careful preparation. Thus, in the absence of a systematic plan for risk assessment, organisations were unable to anticipate and prepare

for risks, make well-informed decisions, or allocate resources efficiently. As a result, a major barrier to the successful implementation of IT projects in public enterprises was created.

The company should know how to optimise the success of the project. As stated in the book of A Guide to the Project Management Body of Knowledge (PMBOK), there are few processes to follow for the risk management process.

#### 2.4.1 Plan Risk Management

In this process, the project will define how to conduct the risk management activity in the project. IT initiatives are not primarily associated with financial concerns [10]. IT project managers may act more swiftly to address difficulties before they worsen and endanger the project's objectives by knowing these fundamental problems in actual terms rather than just by looking at their financial effect. Risk management and risk assessment are required in the domains of information technology and operational hazards in order to reduce losses.

#### 2.4.2 Identify Risk

Risk is defined as an unexpected event or condition that might have either positive or negative effects on project objectives [11]. Recognising risks in a project is essential since it helps to anticipate any ambiguities and difficulties that can affect the project's outcome. This procedure is essential to efficient project management because it enables groups to create plans for reducing, controlling, or even getting rid of hazards before they become more serious. Project stakeholders may improve their comprehension of the project environment, foresee roadblocks, and make well-informed decisions to protect project objectives by methodically identifying risks.

#### 2.4.3 Perform Qualitative and Qualitative Risk Analysis

Qualitative analysis is a very simple approach that may be used for a wide range of tasks, and it frequently relies on expert judgement. It is simple to communicate to stakeholders and put into practice. This simple method may be swiftly and readily modified as conditions and dangers alter, and it doesn't require a lot of technical expertise. Teams can utilise a variety of qualitative risk analysis approaches, including expert judgement, data collection, and data analysis. While data collection uses information from stakeholder interviews, expert judgement is more subjective and offers advice based on comparable experiences.

The method of quantitative risk analysis falls within the knowledge area of risk management. It makes sense that this procedure is dubbed "Perform Quantitative Risk Analysis." A risk management technique called quantitative risk analysis aids managers in analysing quantitatively how hazards that have been identified may impact project goals and whether or not contingency reserves would be needed to account for those risks. In order to effectively prepare for risks, it might be useful to estimate or simulate risk-related data by using quantitative risk analysis to assess project hazards.

#### 2.4.4 Plan Risk Responses

A document that outlines the tactics that would be used to reduce project risks that might have a negative impact is called a risk response strategy. In introductory research on establishing risk responses in project risk management, [12] used a semi-quantitative method and came to the conclusion that the most crucial phase in PRM is risk response planning. The risk reduction leverage factor, which can be calculated by turning risk impacts into monetary values for each risk response individually, is the method he recommends for choosing risk responses.

#### 2.4.5 Implement Risk Responses

Discussions about possible problems are not always enough to address them, thus it is vital to execute risk response plans, which is the process of taking action and putting the plans into practice. From the

moment when risks are initially recognised throughout the project lifetime, the Risk Response Process is employed. It is then periodically evaluated to incorporate new risks and make sure that the response to current risks is still pertinent. A number of project management strategies are used when deciding how to respond to a risk, such as consulting with subject matter experts, project team members, and past project lessons learned. The methods and instruments used will be highly dependent on the type of implementation being performed. It goes without saying that significant differences exist in how the "acceptance" technique is applied compared to a full-scale action plan aimed at mitigating the problem.

#### 2.4.6 Monitor Risk

The risk managers at the company should create a risk register with information on each risk, including its level of urgency, reaction plan, and priority, in order to track and evaluate risk assessments. Sort each risk into distinct sections, including information security, budget, or operations concerns, and then rank the likelihood of each risk to determine its priority. To guarantee continuous monitoring, choose a risk owner who will be in charge of handling each risk. Periodically review the risk registry (every year, for instance) and make any required updates. This enables a more proactive approach to risk management by assisting in the identification of fresh threats and the detection of evolving trends in already-existing dangers.

Emphasis was placed on the deficiency in project planning, the absence of an early risk assessment strategy, and the ensuing possibility of suffering major delays. These difficulties highlight the need for proactive risk management, which is in line with accepted project management guidelines like the Project Management Body of Knowledge (PMBOK). The study found that the organisations' ability to successfully manage IT projects was greatly influenced by the lack of an effective initial risk assessment approach. These consist of organising risk management, recognising hazards, carrying out qualitative and quantitative risk analysis, organising risk responses, putting those responses into action, and keeping an eye on hazards. According to the referenced publication, the study's conclusions highlight the necessity and usefulness of these risk management procedures in the context of IT initiatives inside publicly traded corporations.

#### 2.5 Human Resources Management Issue

According to the findings of the survey, there are a few problems with the way human resources management is carried out. A similar percentage of respondents said that these responsibilities and tasks were not well documented, even though 60% of respondents said that before starting, each member of the team was aware of their responsibilities and tasks. This has the potential to cause confusion and misunderstandings among the members of the team. In addition, only 40% of respondents stated that the allocation of resources is done after analysing the necessary knowledge and experiences to complete any given project. This could result in a shortage of resources or in those resources being directed to areas that do not require them.

In addition, 60% of respondents stated that they had the impression that their efforts were not being recognised, which has the potential to lead to dissatisfaction and demotivation among members of the team. Finally, only one-third of those who participated in the survey were in agreement that they received sufficient training before beginning work. Because of this, members of the team might start to feel unprepared or unqualified to perform their duties.

According to PMBOK, there are several solutions for human resources issues in project management, which are:

1. **Organisational Planning:** This step assists in determining, documenting, and allocating roles, responsibilities, and reporting relationships for the project. It ensures that the appropriate individuals are assigned to the project and that each individual has a distinct role and set of responsibilities to fulfil.

2. **Staff Acquisition:** The process that focuses on getting the required human resources assigned to the project and working on it. It includes tasks such as recruiting, selecting, and employing members of the project team, among other things.
3. **Team development:** A process that aims to improve project performance by developing the individual and group competencies of team members. It includes things like providing training, building teams, and encouraging a working environment that is conducive to collaboration.

Project managers can effectively manage human resources by acquiring the required resources, developing the skills and capabilities of the project team, and ensuring that the appropriate individuals are assigned to the appropriate roles by following these processes [13].

Businesses need to address these concerns to enhance the efficiency of their management of human resources if they wish to see positive results. Human resource management is responsible for developing and implementing training and development programs for new and existing employees. This aids in the qualitative and quantitative performance of the workforce [14]. The efforts of individual team members should be recognised whenever possible to help improve both motivation and job satisfaction. Finally, assigning resources according to the skills and experiences of project participants is one way to help ensure that projects are completed successfully and quickly. The most significant shift in recent human resource management trends involves a new emphasis on benefits and work/life balance [15].

### **3. Conclusion & Recommendation**

In summary, the examination of IT project management in public companies has underscored critical challenges that significantly impact project success. The deficiencies identified in Project Scope Management, such as a lack of clear vision and documented changes in project content, emphasize the need for precise goal-setting and comprehensive market research at the project's initiation. For instance, a public organization embarking on a new IT project might benefit from conducting thorough market analysis to understand user needs and technological requirements, ensuring a well-defined project scope from the outset.

Challenges in Project Time and Cost Management, stemming from poor documentation practices, highlight the importance of implementing a robust system for recording lessons learned and updating project documentation regularly. For example, documenting unexpected project changes and their impact on time and budget could prevent similar issues in the future. Public enterprises can establish a repository of best practices and pitfalls to facilitate knowledge transfer across projects, fostering continuous improvement.

The absence of a monitoring process during project execution, signalling a gap in Project Quality Management, necessitates the introduction of oversight procedures and ongoing assessment frameworks. A practical example could involve the implementation of regular project reviews to assess deliverable quality, identify potential issues, and ensure alignment with established standards. This proactive approach to quality management can enhance the overall success and reputation of IT projects within public organizations.

Additionally, challenges in Project Risk Management and Human Resources Management, arising from the lack of an initial risk assessment plan and inadequate employee training, highlight the importance of proactive risk mitigation strategies and skill-based resource allocation. For instance, a comprehensive risk assessment early in the project lifecycle could identify potential challenges, enabling the development of effective contingency plans. Providing targeted training to team members ensures they are well-equipped to handle project demands, contributing to a more skilled and adaptable workforce.

In conclusion, addressing these identified issues requires a holistic approach, encompassing clear objectives, improved documentation practices, enhanced quality and risk management, and

comprehensive human resources strategies. By aligning solutions with PMBOK principles and incorporating practical examples, public organizations can cultivate a more successful and productive IT project management environment, fostering improved coordination and adherence to guiding principles.

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