

# Public Sector Project Management: Perception of Risks in IT

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## **ABSTRACT**

*Information Technology (IT) is the fastest growing sector of Pakistan's economy. Almost every governmental organization has its own IT section. Moreover, Electronic Government Directorate (EGD), Ministry of IT also provides assistance to these departments. IT projects consists of passive as well as active components of multiple brands managed by the department itself and EGD; and lack of integration between them inhibits risk management. This research explores different type of risks which appears in the entire process of planning and implementation and proposes a way forward based on analysis of two large public sector organizations in Pakistan. Qualitative approach based on in-depth interview is used. The mandated planning support role of EGD has been found wanting. Trainings investments seem to have little or no trickle down affect. The research indicates flaws in the current system which leads to the delay in projects and sometimes leads to the failure of the projects which results in the wastage of the tax payer's money. It also explores planning related risks and can help eliminate them.*

**Keywords:** *Project Management, Information Technology, Pakistan, Public Sector Training, Planning.*

## **INTRODUCTION**

With efforts made to increase infrastructure, most companies usually suffer wastage of resources due to the failure of overlooking possible risks. Some of the important factors that must be deliberated before starting the IT based projects are efficient planning, drafting the precise requirements and selecting the true system that fits the particular need of the organization. However, this business management process gets neglected leading to failure of considering many measures that work towards curtailing failures during the entire project life cycle (Blair 1993).

Surprisingly, although the management deals with the modern technologies, they perform like amateurs in the arena of risks. According to a research by Standish Group in 2002, nearly 20% of the IT Projects are canceled before their completion. Only less than one third of the IT projects achieves their expected functionality and are completed well on time and budget. (Standish Group, 2004)

To avoid or mitigate the risks, an effective risk management policy is required. With respect to the failure of IT projects. Prior to the actual realization of the failure, premature warning signs are usually triggered that contain significant and apparent symptoms (Wallace, Keil and Rai, 2004). It is eminent for the managers to fully assess the presence of ambiguities (Keil and Montealegre, 2001) that may lead towards the postponement or failure. Consequently, conducting such sort of assessment beforehand will not only save the project on time but also save the substantial amount of money spent on it.

Risks in IT project can be categorized into three types; Project management risks, social subsystem risks and technical subsystem risks (Wallace, Keil and Rai, 2004). However, the probability of failure of IT project due to technical risks is low as compared to the other two where technical reasons may contain complex systems, new technology or lack of expertise. These sorts of technical hazards can be mitigated up to a certain level but these risks cannot be eliminated as such threats can disturb project timelines very easily.

In Pakistani context, IT projects have a number of stakeholders that contribute their resources in order to efficiently deliver the project. Normally, the actual demand for resources is greater than the available resources. This is so, because the actual production of goods is carried out with respect to its expected sale. This means that the forecasted sales may not always be equal to the actual level of production as well as the level of employment. Of course, it is eminent to state that the case of production by any firm is generally constrained by the actual capacity as well as the factors leading to output.

To cater this problem, all stakeholders have to be committed to guarantee the successful completion of project and budget. More specifically, it must be made sure that each stakeholder is fully involved in the project highlighting the fact that if the major stakeholders are not participating in the project, the project does not hold any priority for them is therefore less than a high priority project. Hence, such scenarios tend to be a challenge for project manager with respect to acquiring the required resources for other channels without disturbing the schedule and cost of the project at the same time.

Therefore, the Lack of support from the top management can be termed as the early warning sign which can cause demotivation amongst the employees (Leon, Kappelman, McKeeman and Zhang; 2006). Such problems are usually created where a bottom up approach is applied in the management function of an organization. Hence, the need for top management can only be understood once the need to align the priorities of the project and the strategic goals of the firm are needed. Resultantly, the need for the middle managers to fully understand the importance of the top management is very important. Because where they might be fully educate with respect to the priorities of the project, the top management is fully equipped with the expertise that aligns the same project with the strategic goals of the firm. The weaker the project manager with respect to the alignment of the goals, the greater threat he is to the completion of the IT project. Such scenarios occur where team members, like programmers or analysts are promoted to project manager without realizing the change in scenarios as this is fundamentally a different kind of job. The major role of project manager is to coordinate and plan unlike the analysts or programmers who have to perform. Other than that, support is also required from other stakeholders or staffs that are not directly working for project manager and communication and leadership capabilities are the basic requirement. Accidental project managers who lack these skills cannot deliver a project within budget scope and time (Meredith and Mantel, 2011). Delivering a project with the desired results within scope and time is a challenging task for the project manager. Also, if the project manager also has a weak commitment to the scope and schedule of the project, the resultant scenario is unmanageable task and

team members with diverted attention. Therefore, with effective commitment, the project manager needs strong leadership skills to make a project successful.

Other major reasons for project failure can be poor planning, unrealistic budgets allocated by the sponsors of the project, lack of skills and commitment in project manager and project team, any personal interest of major team member or project manager (Keil & Montealegre; 2001). The other major cause of delay in project is generally caused due to the lack of relevant requisite skills and knowledge in the team members. If the required skills are presently not available within the team, project manager if the required skills are presently not available within the team, project manager must take the necessary actions to acquire the required skills on time. For that purpose, subject matter experts can provide support to the project team about processes, objectives; rules etc. keeping such factors in mind, the current project are exploring various dimensions of risk in the Pakistani context. Doing so, the paper is identifying two Pakistani government organizations and discussing the view of their MIS department in relation to the IT projects through interviews. The paper will explore various researches published over the years that will highlight the global risks faced by the organizations. The research will then interview various professionals from the identified organizations and then state the Pakistani perspective and views regarding the risks in IT projects.

## **LITERATURE REVIEW**

There can always be a lack of documented necessities as well as the success criteria behind failures or delays in IT projects (Kappelman, McKeeman and Zhang, 2006). More specifically, there is always a need for documenting the functional, performance, and reliability requirements. In this way, every project team member and stakeholder will be able to bring their expectations to the document. This is so because every member of the team is always working from a different angle and it is necessary for a project manager to cater to each expectations and assumptions about the project. Therefore, catering to every mental blueprint allows the team to sign-offs on requirements documentation forces and eventually the differences in anticipations and suppositions that might arise can be easily determined. Everyone *'needs to pull the oars in the same direction, if not, the project won't initiate'*.

Those projects that do not succeed usually contain an undefined success criterion (Barki, Rivard and Talbot, 2001). In this way, stakeholders soon withdraw from the project as they are the ones who provide resources as well as support for the project. Such condition arises if the purpose as well as the advantages are not coherent and communicated. Therefore, projects that contain undefined success criteria are bound to disappoint the team.

It is also necessary that the project caters to the changes that might occur through a control process. Such changes tend to occur at a total rate of 2 percent (Jones, 1995) on monthly basis. In order to deal with such rate of change, it is important that the project team highlight the frozen requirements. Making sure that such problems are highlighted at the beginning of the project, factors such as changes in competitors, changes in business processes, regulations, laws, opportunities, changes in technology and senior management can be effectively dealt with. Of course, change is the only constant which means that it is inevitable. Therefore, each initiated project must have a process that deals with change.

Keil and Montealegre (2001) highlight the importance of effective schedule planning as well as the management in IT projects. According to the authors, the milestones as well as the deliverables of every project must be outlined and highlighted with respect to the due date. Documenting the aforementioned data, a single opinion of what needed requirements to be get done can be easily identified. Furthering their research, it was also identified that accomplishment of short-term tasks in

order to achieve the long-term objectives can also be easily developed. However, it must be noted that with different situation, the requirement of skills as well as the resources are very different. Also, each short term goal accomplished leads to the accomplishment of a much bigger goal. In this way, every member of the project team holds a steady perspective of the transitional landmark along with several deliverables and the due dates.

Kurzweil and Grossman (2004) mention that projects relating to IT must always be estimated from the bottom up. In this way, the completion is always assessed by determining the previously finished steps which would consequently estimate the time required for the next step. Authors also state that after development of the bottom-up schedule a full reconciliation must be carried out with the schedule of the top-down project. One of the early warning signs associated with the project failure is ignoring the early project delays. It has been pointed out that the first 10 percent of the project is usually the easiest as the preliminary responsibilities are usually known, mapped out, and unaffected by tribulations of previous tasks. Nevertheless, it must always be made sure that projects begin on time as a late start usually results in non-commitment of planned resources consequently delaying the following tasks extending the completion time of the entire project.

Therefore, in order to obtain error free IT project management for the victory of the enterprise, the executives with relation to the development of their profession as well as the success of the project managers and participant project team members must be achieved. Yourdon (2003) mentions that many risks in the failure of an IT project usually appears in the first quarter of the project phase. More specifically, the early warning signs appear in only the 20 percent phase of an IT project. It is also advised that such signs be identified at the earliest that in turn increases the likelihood of an unbeaten project ending. The author also highlights how an IT project can easily become a “death march” due to constantly changing circumstances and a failed idea. Identifying such factors that lead to a situation described earlier can develop a better understanding of a successful project. With Information Technology sector considered to be the fastest growing and emerging sector these days, almost every government organization of Pakistan have its own IT section which is responsible for developing and smooth running of IT services of this organization. Moreover, EGD also provides assistance to these organizations to some extent.

The designing phase of the IT project is the most important phase and poor designing can result in failure or major delay in the project. However, due to lack of expertise, many flaws develop in the design of IT infrastructure that generates countless issues in the execution of the project making the original goal unattainable. IT projects consists of passive as well as active components and their integration is considered as very important task so risks in the implementation processes should be mitigated to avoid the delay or failure. The current project is therefore identifying the dimensions of risks in IT Projects in Government Organization of Pakistan.

## **RESEARCH OBJECTIVES**

The aim of this study is to develop an elemental input in the basic understanding of risk in management of IT projects and the various dimensions it holds. For that reason the research is making additions towards an understanding of the experiences of 2 organizations faced in early years. Further, the research is also identifying the experiences of the government employees in Pakistan. The research objectives developed for the current study were the following:

- a. Exploring of various dimensions of risk in IT based projects.
- b. Risk in IT based projects faced by the sampled organizations.

- c. Investigate the impact this research would have for the strategy of those organizations.

## **RESEARCH METHODS**

The research conducted has analyzed of the perception of risks in IT based projects in Public Sector. The quantitative analysis manages to easily observe obvious activities very easily. This method also enables comparison in an easy way but data collected through this method cannot be valid or reliable for which researchers prefer qualitative research methods. However, the quantitative analysis does not hand out an in-depth view to the subject which makes it useful for the research to obtain statistical data so that the study can be provided with an overall view to the user of data. Quantitative research method cannot be useful if researcher want to take sample at any particular moment (Creswell, 1994).

As for the qualitative analysis, this analysis provides an in-depth view about certain people and obtains the reasons behind that particular view as well. Other than exploring questions like when, where, and, what, qualitative analysis is also able to aid the research in finding about how, when and why. Qualitative analysis helps in research where in-depth investigation and exploration is required. This kind of analysis manages to allow the respondents to illustrate the facts and figures in points and is as that aid the researcher to acquire the clear picture and he can avoid the pre-determined areas which results in saving of useless efforts. There is a surety of validity of data as research is done in detail. As far as the disadvantages of qualitative analysis are concerned, the biasness in the collected data is one of the biggest issues as the number of samples is in limited number. Grounded theory practice is the most common way to collect data in qualitative analysis. In conclusion, the qualitative approach is the best fit in this scenario as the variables under discussion requires a qualitative analysis (Maykut and Morehouse, 1994).

Primary and secondary data was collected. The secondary data was obtained through research journals and articles that enabled an in depth view on the variables for the intended research. In this way, several studies were identified that explained IT risk in project management in various organizations. The data was then analyzed in light of experiences faced by the two organizations in Pakistan. That was collected through primary research.

In order to collect the primary data necessary for the research, interview technique was used. These were standardized in nature and thus enabled effective collection of data. The interview questions used in the study was based upon standardized questions. Here, the word 'standardized question' means a feedback form that aims to ask respondents the same types of questions which results in a coding system same in nature. The questionnaire has therefore been adopted from a research conducted by Tsech, Kloppenborg and Frolick (2007). Thus, the questionnaire that aimed to examine the dimensions of risk in IT based project of government organizations in Pakistan viewed different responses from different respondents as the difference of reflection rather than a difference produced from the process of generating responses.

The interviews also collected information from the respondents other than the ones that have been already collected published and are easily available. The interview questionnaire was developed after analyzing all sorts of data collection techniques like the field experiments and control group techniques, which was not feasible as the study had to be conducted in a natural environment, content analysis of newspapers or articles; which was also not feasible because it would not accurately state the required information.

The population chosen on a research is a group of potential respondents that can be involved in the later stages of the research. As the current research is focused on the dimensions of risk in IT based project of Public Sector in Pakistan, the organization chosen is the Pakistan Bureau of Statistics and Pakistan Ordnance Factory. The total number of MIS employees for Pakistan Bureau of Statistics is 15 whereas the total number of MIS employees for to Pakistan Ordnance Factory is 25. Five employees from each organization were interviewed in depth. In order to reduce the chances of sampling error, the study uses random sampling. The respondents were therefore selected at random from MIS department of both organizations. The interview was conducted for a total of 20-25 minutes with each respondent. Each answer was recorded and confidentiality of the respondents was maintained.

	<b>Organization A</b>	<b>Organization B</b>
<b>Area</b>	Chemical and Electric systems	Statistical Services
<b>Revenue</b>	US \$ 100 M in addition to services provided to military	US \$ 5 M
<b>Total employees</b>	50000	7000
<b>Employees in IT department</b>	150	30
<b>Departments #</b>	30	5
<b>Current IT projects #</b>	7	6

**Table 1: Organizational Profiles**

## RESULTS

Analyzing the weighty and critical function of project management in nearly every project, especially in the field of information technology, it has been found out that there is a significant need to intensify the development and growth on the characteristically measured and excruciating procedure of knowledge. Such knowledge is directly related to the driving knowledge base of IT project management. The retrospectives of several projects conducted by the sample organizations must strive to develop and advance further than the usual and undemanding checklists. Such checklists in the sample organizations are a tool towards establishing an analytical approach that caters to the mere assessment of the identification of factors that went right and wrong in the project. It has also been found out that there is a need for the directors in these organizations to focus on the identification of factors that cause major failures and triumphs in the organizations.

When it was asked in terms of software development, how much preference is given to the self-development rather than acquiring the 3rd party software? The reply was an interesting mix from both organizations that stated both organizations to be lacking in self-development initiatives. Moreover, such failed measures have been able to favor their competitors much more than the organizations themselves. It was therefore stated that acquiring the 3rd party software have been favored much more than the making their own software.

It was also inquired if there are any procedures to get the required budget, are the procedures lengthy enough as compared to the advancement in IT, how much cushion is there in the budgets planning in order to cater the inflation and how much regular budget requirements are covered under the umbrella of IT projects Budget. It has been found out that the prospective stakeholders also

require a number of dimensions to be met with respect to the successes of a project. It has been found out that the sample organizations usually cautiously recognize and document such factors at the commencement of an IT based project. Other than that, it is also re-examined sporadically all over the project. This includes in any case one post implementation exposition. All in all, the budget involves criteria of Time, Cost and Product. Such factors are considered as the trade-off triangle by researchers as one factor is usually a choice between the earlier mentioned factors. The managers in both organizations were found lacking when it comes to negotiating the areas of this triangle as well as the effect of the tradeoffs established with respect to the three standards of outputs that was mentioned by their employees in the interview. The standards followed are therefore Use, Learning and Business value.

Lacking support for the Organizations provided by EGD, meant for planning IT needs of Government Organizations, has been apparent in both of these sample organizations. However, when self-developments of the projects are chosen as an alternative, the organizations make sure that they consult their vendors. Trainings in such organization were also found to be lacking and there is no trickle down affect established. Most of the trainings that are conducted, which also includes seminars and other conferences, are usually given to the top officials. Lacking support for the Organizations provided by EGD, meant for planning IT needs of Government Organizations, has been apparent in both of these sample organizations. However, when self-developments of the projects are chosen as an alternative, the organizations make sure that they consult their vendors. Therefore, the employees have been found lacking in training as the allocated budget is very low. This means that the budget allocated to the employees training to run the systems efficiently is fixed and if any raise is needed, a long procedure has to be followed with respect to the already approved budget. Another major factor identified is that preference is given to 3rd party support rather than training organization's own employees. However, the ratio of successful IT projects deployed in the organization which are producing results as desired is more than the failed projects so far consequently affirming the vendor with the organizations. It has also been observed that the project charters established consists of consulted and bargained winner metrics. In order to further the project, the metrics is then assisted by a project dashboard. Nonetheless, despite of the presence of metrics or project dashboards, it has been effectively established that the need for stakeholder approval and commitment is vital for the success of projects in these organizations that needs to hold tangible consequences.

## **ANALYSIS & CONCLUSION**

In Pakistani context, IT projects have number of stakeholders and these stakeholders have to contribute their resources in order to efficiently deliver the project. Normally, there is more demand for resources than the available resources. To cater this problem, all stakeholders have to be committed to guarantee the successful completion of project well on time and budget. If major stakeholders do not participate in the project, it means that particular project is not a high priority for them. This scenario is a challenge for project manager to get the required resources for other channels without disturbing the schedule and cost of the project. Therefore, the Lack of support from the top management can be termed as the top early warning sign which can cause demotivation amongst the employees.

After the research, it has been identified that looking past the 'high tech glamour' as stated by Heeks (2003), there stands a harsh reality of major failures. The grubby realism is that most of these projects are letdowns especially in the arena of IT based projects. It has also been established that the IT projects carried out in the Pakistani environment can be distributed into three camps that have also been backed up the research of Heeks (2003).

Firstly, the respondents in both the organizations pointed out that at least on their IT based projects in the Pakistani environment had been designed but not implemented due to various reasons. Therefore, such a camp can be regarded as the projects that are a 'total failure'. The projects in this arena are therefore never put into practice or was executed but instantly discarded. Other than that, there are also projects that are fractional failures. In these kinds of projects, the respondents stated that chief objectives for the project were not accomplished as well as the fact that the project proposed major unwanted conclusion. Then there are projects that are known as the success projects. In such kinds of project the respondents stated that the groups of stakeholders do not achieve their chief objectives. Other than that, they also did not experience noteworthy unwanted results.

It has also been established that such failures are more cutting in the third world countries. According to the respondent: "Such kinds of failures are much more harmful to the organizations that are operating in the developing countries". The respondent also mentioned that there are several categories that state the possible costs of those failures that are IT based and are related to the failures of government. The factors identified are Direct Financial Costs, Indirect Financial Costs, Opportunity Costs, Political Costs, Beneficiary Costs and Future Costs. The first dimension is the Direct Financial Costs which states that the endowed cash faces failures with respect to apparatus, advisors, latest amenities, instruction agendas, etc. As for the Indirect Financial Costs, such failures involve the cash spent with respect to the time and exertion of public servants of the project. Other than that, certain projects also fail because of the opportunity costs. This highlights the amount of money that could have been spent on some other project rather than the failed one. There are also the political costs that are the build-up of a bad image and a bad face for the organization due to the ailed project. As for the beneficiary costs, these are those benefits that could have been attained after a successful project but were not attained. Lastly, the research has also identified future costs. This means that if a certain project fails of the government, any future project from the government in case of IT faces huge impediments. Such barriers have been highlighted by the respondents that state a decreased level of motivation to conduct any future project with respect to the stakeholders as well as the loss of authenticity as well as trust in the approach which the government takes with projects. In this way, there is a heightened aversion to risk aversion as well as maintenance for others that contain vested welfare with respect to the status quo.

Both companies highlighted three basic types of gaps due to which most of the IT projects in Pakistan fail. Such types of gaps have been mentioned as the prime example of the blueprint and realism breach. Of course, it can be established that the failure identified are of many types, but the basic three dimensions of the gaps identified that has been able to cause failures are hard-soft gaps, private-public gaps and the country context gaps. The first kind of gap relates to the way individuals reflect with respect to the machinery as well as engineering. Such kind of reflection involves sagacity as well as impartiality. According to the respondents, most of the IT based projects in government Organizations tend to be developed as well as designed with respect to the earlier stated ideas, concepts and views. However, even though such projects are based on the earlier motioned hard facts, they are in reality governed by many soft factors. Hence not governed by hard factors, aspects like public, political affairs, feelings as well as culture play a very important role. With such a gap present, there is a high chance of failure.

There is also the breach of private and public sectors. In spite of the pains of many, there is still a huge difference between the public sector and the private sector. Despite of such differences, the organizations of the respondents has been observed to forget it and therefore tend to grasp the types of systems that are designed for the private sector or vice versa in case of the private sectors. But the story does not end here; the organizations also try to enforce it on their selves despite of the differences in their realities. In this way, the heat and noise made enforces failures. As for the country context gaps, organizations are seen trying to fit an international system into their organization

without realizing the differences between the two scenarios. Such ways are regarded as quick fixes by many authors, Heeks (2003) and is therefore regarded as an off the shelf approach as well. In conclusion it can be stated that one must keep a strong eye on the rear view mirror of the company. ‘Individuals who do not consider the history are destined to replicate the same failures.’

### **LIMITATION AND FUTURE RESEARCH**

There is a lack of prior research studies on these organizations in areas of risk management and may have influenced the secondary research base. In addition, the data collection instrument used in the study was ‘interview’ only, thus there is always a chance that of respondent bias. Future researchers are encouraged to carry out the same kind of research in other areas of the Pakistani environment so that a holistic approach can be identified.

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