

# A model for Crises Management in Software Projects

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## Abstract

*Today software projects are important part into almost every business application. It is quality, efficiency and effectiveness of these applications will determine the failure or success of many business solutions. Consequently, businesses often find that they need to have a competitive and efficient advantage through the development and improve of software projects that help critical business activities. The quality of a software project is determined by the quality of the software development process. Improvements in the development process can lead to significant improvement in software quality. Based on the foregoing risks and problems which may be software engineering project faced, we try to shed light on the mechanism of dealing with crises in software engineering projects in this research. This research suggests a set of rules and guidelines that help software project managers to prevent and dealing with software project crises Also a model was proposed; the proposed model showed a set of steps that must be implemented in case of crises emerging or before it happen. The crisis management starts understanding it first and then to prepare a careful review of her as she is looking for regions or aspects of the turmoil and failures. The next step is the classification of crisis, then the preparation or design a plan attitudinal or contingency plan, which must be implemented immediately upon the occurrence of crisis. Finally, the final element is the implementation of the program or plan established soon after the crisis and it should be noted here that the project team of software engineering that have been trained on the virtual models of various crises, which helps in the development of managed, skills, and also that you should avoid or ignore the failure to acknowledge a problem when Start or try to be underestimated or taken lightly.*

**Keywords:** software project, risk management, crises management

## 1. Introduction

Software project management is one of the most challenging in software development. Proper project planning and control is not possible without a sound and

reliable management. As a whole, the software industry doesn't management projects well and doesn't use management appropriately [1]. Project and program managers require accurate and reliable management to allocate and control project resources. In addition, they need to determine whether, for a given system size, the cost of a prospective project is too high to redefine the project or put in place appropriate contingency plans.

Furthermore, in a survey of 280,000 applications projects in large, medium and small cross industry companies, the Standish group showed that about 23% of projects were cancelled before completion and 49% exceeded their budgets and time scales and had fewer features and functions than originally specified [2]. Another survey by Taylor [3] of 1027 software projects discovered that only 130 projects (13%) were successful.

A project is usually deemed as successful if meets requirements is delivered on time and delivered within budget. Therefore software risk management is an approach that attempts to formalise risk oriented correlates of development success into a readily applicable set of principles and practise [4]. Risk management is aimed at taking counter measures to either prevent risk from affecting the project or reduce their impact [5]. Further more [4] believe that by including risk management in a project the exposure to software risk can be reduced and can increase software success. Moreover the implementation of software projects is a complex task involving the successful alignment of both the technical and social system within an organization [6] Further more after decades of research, systems development and implementation projects remain notoriously hard to manage and many continue to end in failure.

Therefore Justifying the success/failure of software projects is a long standing problem, and managers for the past decades have expressed concerns about the value they are getting from software projects, and they have been

searching for ways to evaluate and justify the use of software projects. The evaluation of software projects is therefore becoming an important issue for both managers and software professionals [7,8,9,10].

Developers and managers to the fact that these issues have to be addressed in concrete terms, and as a result the area of Software Project Management (SPM) has evolved. SPM includes the management of all issues and aspects that are involved in the development of a software project, especially scope and objective identification, planning, evaluation, project development approaches, software effort and cost estimation, activity planning, monitoring and control, risk management, resource allocation and control, as well as managing contracts, teams of people and quality at first[11,12].

Another software project management is a series of activities associated with carrying out the project as effectively as possible. According to Kerzner [13], project management defined as "the planning, organizing, directing, and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives." The purpose of project management is providing focus resource using for a specific objective achievement. So, the basic objective of project management is to "get the job done," to achieve the objectives within

Time .  
Cost.  
Performance.

Which are the critical project dimensions that need continual project management focuses. Time refers to as the timeliness of progress relative to the project schedule. Another word we ask: "Is the project on schedule?" or "How large is the schedule progress?" Cost means the expenditures for project resources that, usually measured in terms of expenditure rate and cumulative expenditures. Performance is the degree to which the objectives or specifications are met. In information systems projects, performance is specified in terms of certain

A study by Thavaruban [14], on the effect of culture on software project success has found that it is important to integrate cultural factors with other project success factors in order to achieve user satisfaction. He recommended the adoption of national culture orientation in organizational culture.

Based on deep analysis of the above literature, the following are our findings:

Executive Support is an important success factor for software projects, Clear Business Objective is an important success factor for software projects, Formal Methodology is an important success factor for software projects, Minimizing project Scope is an important success factor for software projects, Standard software Infrastructure is an important success factor for software

projects, Understanding Requirements and Managing Requirements Changes are important success factors for software projects, Reliable Estimates is an important success factor for software projects, User Involvement is an important success factor for software projects, Experienced Project Manager is an important success factor for software projects and Culture is an important success factor for software projects.

Based on the foregoing risks and problems which may be software engineering project in this paper, we try to shed light on the mechanism of dealing with crises in software engineering projects

## 2. Measures of Crisis Prevention

Prevention of crises is the first step and the most important and should take adequate time and effort of study, analysis and planning before or during the implementation of software engineering project and summarize the following measures of crisis prevention

### 2.1 Communication Activities

1. Training Crisis Management Team in the software engineering project team to deal with the means of communication.
2. A great effort by the director of software engineering project and his team in the field of public relations in the internal environment and external environment as well as the draft of software engineering.
3. Increase the information provided to the implementation team software engineering project by the administration of the organization and the surrounding community (the external environment).
4. Analysis and study the information provided by the organization and external environment.
5. Increase and development of relations with the parties on the draft of software engineering.
6. Increase and develop cooperation with the parties on the draft of software engineering.
7. Maximum use of available technology in communications.
8. Maintain lines of communication and sophisticated with a permanent senior management in the organization and various departments in the Organization on the draft of software engineering.

### 2.2 Technical Activities

1. Namely, the management team and crisis prevention and post-crisis draft of software engineering.
2. Generation Crisis Management Team.
3. Identification and allocation of budget crisis management within the budget for the implementation of the draft of software engineering.
4. Develop and change the policies of crisis management, according to the latest analysis and prospects, expectations, and studies.
5. Use of the expertise and external services in the field of crisis management.
6. Permanent Observer for a national risk assessment and prospects at each review.
7. Provide an action plan and crisis management staff aware of the draft of software engineering process and its dramatic and train.
3. Development based on crisis management project software engineering.
4. Provide psychological support to staff draft of software engineering.
5. The recovery and study of previous crises and risks.
6. Retrieval and study and analysis of the crisis in similar activities.
7. Note perceptions of cultural groups of employees and customers with the draft of software engineering.
8. Understand study and analyze the motives and psychological impact on the human and emotional crisis.
9. Study and analyze the various reactions to previous crises.
10. Strengthen ties with militant groups and lobbyists to be FAO project software engineering.
11. To follow developments in thought and practice in the field of prevention and crisis management.
12. Comprehensive education for all working on the project software engineering and advantaged plan or small crises and the role of each of them to prevent crises in their respective areas of work and face a crisis.

### 2.3 Strategic Actions:

1. Must be recognized by the Software Engineering Project Manager and his team need for a treacherous heart within the project team of software engineering.
2. Development of the organization's philosophy to conform to the idea of crisis management, project engineering software.
3. Include crisis management in the planning strategically.
4. Include crisis management in strategic planning processes.
5. Use of experts from outside the project team software engineering team deal with the crisis of internal team.
6. Training programs, especially software engineering project team to manage crises.
7. Crisis simulation to train and provide workers with the draft of software engineering skill in dealing with them.
8. The application of crisis management strategies in theory and practice.
9. To members of crisis management the opportunity to frying education and continuous training whenever possible to develop their minds and develop their ability to analysis and learning.

### 2.4 Cultural Activities And Psychological

1. And follow-up study of behavior and psychological preparations for workers draft of software engineering.
2. And follow-up study of attitudes of the parties surrounding the draft dealing with software engineering.

After the foregoing procedures of crisis prevention, are now trying to set up a mechanism to deal with the crisis when they occur.

## 3. How to deal with the crisis

The concept of crisis: is the process of preparation and orderly appreciation of the problems of internal and external, which seriously threaten the success of software engineering, or profitability, or its continuation and survival in the market.

Based on this concept, he should be on software engineering project manager and his team have the ability to manage software engineering project before, during and after the crisis, and this concept holds that there should be a program or plan designed for this purpose.

Accordingly, it can emphasize the following points in dealing with crises, the draft of software engineering.

1. That crisis management must be two basic dimensions of crisis management from the inside out and managed, from the outside inside.
2. Administration to the crisis is done through a team of well-trained to deal with crisis draft of software engineering.
3. The need for a program or a well-planned to be implemented in the case to reduce the losses and negative results.
4. To have a team engineering project management software internally and

psychologically ready to deal and respond to the crisis and a realization of various dilapidated high degree.

5. The program of crisis management is not just a collection of mechanical actions or procedures, rules and the efforts of the mentality and the other it is a series of steps and processes to assess the mental well thought out and deal with the crisis, the real size.

Based on the above, our art we put the following model figure (1) that illustrates the mechanism to deal with crises in the software engineering projects

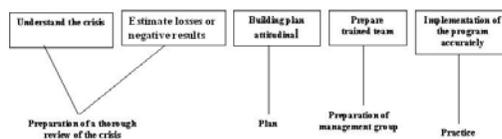


Figure 1: Elements of Crisis Management model in Software Engineering Project

As shown in the figure above we can say that the crisis management starts understanding it first and then to prepare a careful review of her as she is looking for regions or aspects of the turmoil and failures, as well as to prepare the whole scenario of the crisis to be discussed with the introduction of questions, "what if" with the use classification of the quality of the crisis that may occur in the software engineering project or the project exceeded the budget estimates of his or inadequate funding of the project or that there are inconsistencies in the requirements of the team software engineering project or are Denies them the software engineering project or realization of the project is the back of revenue Expected him etc. ... Of crises that may be the draft of software engineering.

Following the classification of crisis, then the preparation or design a plan attitudinal or contingency plan, which must be implemented immediately upon the occurrence of crisis. Here it should be noted that the project manager of software engineering and his team must have a review and management plan to deal with crisis and the plan developed by attitudinal and every stage of the project engineering software and then come form a team to deal with the crisis and this should be working to contain specialists in the areas of different and to study the crisis that occurred in the project, according to the nature and classification of the crisis varied and multiple disciplines in the Crisis Management Team.

Finally, the final element is the implementation of the program or plan established soon after the crisis and it

should be noted here that the project team of software engineering that have been trained on the virtual models of various crises, which helps in the development of managed, skills, and also that you should avoid or ignore the failure to acknowledge a problem when Start or try to be underestimated or taken lightly.

## 8. Conclusion

This research leads to the following recommendations

1. Realizing the importance of time: The time element one of the main variables governing the administration to the crisis time is the only element that its ability to realize the grave danger of the crisis and the process of dealing with it as the speed are needed for absorption of the crisis and think of alternatives and take appropriate decisions and speed in moving the administration to the crisis team and carry out diligence to contain the damage or reduction and the implementation of reinstating the draft of software engineering.
2. Up is an accurate and comprehensive data to all activities and stages that will be going through the implementation of the software engineering project as well as all the crises and problems that may be exposed to the project and the erosion and the implications for the overall activities in the project. Where the presence of such a database helps a lot in the development of a strong foundation for proposing alternatives and choose among them during to the crisis.
3. Always ready to face crises: the process of preparing for crises means to develop the operational capacity to prevent or to respond to crises and review the measures of prevention, planning and training personnel in different roles during the response to the crisis.
4. Communication system to evaluate efficiency and effectiveness: the crisis that contacts play a very important role in the speed and flow of information and views within the software engineering project team and the external environment and as far as speed and a profusion of information as much as success in the mobilization of materials to address the crisis. Addition it is necessary plans and lists of contacts during the crisis first and first.

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