

# Study on Application of SAP Software in Crisis Management

**Shubham V. Hingmire<sup>1</sup>**

PG Student, Department of Civil Engineering, D. Y. Patil  
Institute of Engineering and Technology,  
Ambi, Pune Savitribai Phule Pune University, (India)  
[shubhamhingmire04@gmail.com](mailto:shubhamhingmire04@gmail.com)

**Hemanshu Ahire<sup>2</sup>**

Professor, Department of Civil Engineering, D. Y. Patil  
Institute of Engineering and Technology,  
Ambi, Pune Savitribai Phule Pune University, (India)  
[hemanshu.ahire@dyptc.edu.in](mailto:hemanshu.ahire@dyptc.edu.in)

**Abstract**— Negative events in today's globalized world may lead to crises and thereby affect construction companies in time gradually, especially GST and RERA in India. These events may occur suddenly or after a long process. Process-based crises usually send early warning signals, and construction companies that can catch these signals can prepare against the forthcoming crises. One of the most important processes in crisis management is to establish an early warning system. This provides some time to take the required precautions against potential crises. After catching early warning signals, construction companies that can successfully manage crises inform their personnel about approaching crisis to prepare, organize a crisis team before the crisis, and perform an effective struggle during the crisis. Construction companies which can survive in a crisis may evaluate opportunities of the crisis and start to make recovery studies after the crisis to turn to their former positions. If a construction company estimates a crisis well and executes crisis management efficiently, they can overcome crises with zero or minimal damage. Construction companies should learn crisis and crisis management concepts to escape from crises.

The aim of this paper is to study the principles of projects crisis and to examine several techniques that can be used in the planning, controlling and mitigation stages to overcome the problems of crisis management. Then, a combination of techniques is proposed to accelerate schedules and optimize budgets.

**Keywords**—early warning signals, process mapping flow, sap

## I. INTRODUCTION

Negative events in today's globalized world may lead to crises and thereby affect construction companies in time gradually, especially GST and RERA in India. These events may occur suddenly or after a long process. Process-based crises usually send early warning signals, and construction

companies that can catch these signals can prepare against the forthcoming crises. One of the most important processes in crisis management is to establish an early warning system. This provides some time to take the required precautions

against potential crises. After catching early warning signals, construction companies that can successfully manage crises inform their personnel about approaching crisis to prepare, organize a crisis team before the crisis, and perform an effective struggle during the crisis.

Construction companies which can survive in a crisis may evaluate opportunities of the crisis and start to make recovery studies after the crisis to turn to their former positions. If a construction company estimates a crisis well and executes crisis management efficiently, they can overcome crises with zero or minimal damage. Construction companies should learn crisis and crisis management concepts to escape from crises.

Therefore, in this study, key points such as the concept, properties, objectives, approaches, and the process of crisis management were explained in a detailed manner from the perspective of the construction industry to increase performances of construction companies during crises. Thus, the current study can contribute to construction companies to catch early warning signals of a crisis, to motivate the personnel against the crisis, to perform an effective struggle during the crisis, and to turn to the former position in a short time after the crisis.

## II. LITERATURE REVIEW

### A. Introduction to Crisis

Crisis, according to Hallgren and Wilson (2008), is any incident that poses a threat to an organization's security or has an adverse impact on its financial situation, relationships, or reputation in the marketplace. Ocal, Oral and Erdis (2006) mentioned that crisis can be either abrupt or cumulative. They described 'abrupt crisis' as an unexpected impact of internal and external disturbances that is generally more specific, but less predictable than a 'cumulative crisis'. In contrast, cumulative crisis is foreseen although it may occur suddenly. The crisis occurrences can be seen, to a certain extent, as an examination of the response capacity of the concerned organization. Thus, when they occur, crises highlight

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weaknesses in the organizations which would normally remain hidden (Loosemore, 1998).

### **B. Crisis Management**

Markus Hallgren observed the nature of crises and their remedies that have interfered with project progress of an international construction company are reviewed in this study. Different crises were studied in a “projects-as-practice” approach. Characterization was made of both the nature of these crises and how they were managed. Management of projects carries a certain allure for individuals who shun routine, work-a-day life styles. The uncertainty associated with producing unique output implies that each day can bring new experiences. In this regard, Pavlak discussed the fire fighting aspects of management associated with disruptions that threaten projects and crises those affect organizations. As suggested from the literature, both abrupt and cumulative were observed in a project as practice study of an international construction firm despite the company’s approach to risk management. Therefore ultimate responsibility for their treatment of various crises lay with the project manager. Selim Sahina viewed crisis management as a process that includes catching and evaluating crisis signals and needs to take and implement necessary precautions in order to overcome a crisis with a minimal damage. Detecting the early warning signals of a crisis contributes firms to hinder the occurrence of the crisis and to survive without huge financial losses. Factors that contribute construction firms to survive with zero defect can be listed as follows:

1. Catching indirect signals before a crisis.
2. Developing proactive methods to defend themselves against the crisis.
3. Taking the crisis under control.
4. Taking required measures after the crisis for the recovery of the firm.
5. Recording the lessons learned from the crisis

## **III. RESEARCH METHODOLOGY**

### **A. Problem Statement**

Negative Events are affecting construction industry e.g. demonetization, GST, RERA etc. There are drawbacks in current Process Mapping Flow of the organization to face these crises. There is a need to introduce a method which can catch Early Warning Signals & easily accessible to top management for facing crises. According to RERA act organizations are bound to use 70% of their earning from particular project for the completion of the same project only. They cannot use money for other projects. Hence organizations need to manage these financial crises as best as possible in order to smoothen the business. The top management has to face these crises. For this they should have a proper control over the activities related to finance. But for

big organizations it is not possible to top management to access easily for each & every project at micro level. Failing to manage this crisis may lead to uncontrollable damage to organization's growth.

Hence there is a need to find out the activities where cost can be saved. In addition there is need to find out the easy tool for the top management so that they may have proper control over all the projects easily. So, in this study the attempt has been made to find out the areas of improvement for the construction organizations by which the financial activities get hampered. Because the construction organizations are mainly depend upon the huge working capital. Hence there should be a proper control over where to invest & at what time.

The main area of improvement in the construction organizations which may lead to financial crisis is improper inventory control. The construction organizations required lots of material which costs high for the project completion. They need to invest most of the money in purchasing of required material. The organizations have to invest mostly in two areas

1. Material Purchasing
2. Payment of service providers

The above mentioned activities are continuous one. Hence there should be a proper planning for these activities. Failing in the same results in cost overruns & project delay. Because if material is purchase in less than the requirement , it affects the progress of project. Due to the same the project delay occurs as well as indirect cost associated with delay gets increased. Hence it results in the cost overruns. Also if the material is purchased more than the requirement, it remains idle due to unused. The organizations money gets wasted due to the same. Also due to the same they may face financial problems. Because the same money can be used elsewhere for genuine purpose. Also it may result in late payment of vendors. If vendors are not paid as per terms and conditions, they may deliberately slow down the work. Also there may be chances that vendors may compromise in quality of the work. Also the vendors are likely to terminate the work if the things become worst. This results in the delay in project completion. Due to all above mentioned problems the organizations business gets hampered. The only reason behind this the improper financial management. But the problem is that the top management remains unaware about these things unless and until some major issue occurs. Hence there should be an early warning system for this crises.

### **A. Objectives**

Objectives of this study are to

- Study the concepts of project crisis in general in regards to budget delays and schedule overruns.
- Investigate the main drawbacks of project management practices and examine the main project uncertainties that lead crisis.

- Explore better planning, monitoring and control practice

### B. Scope

The scope of this study is confined to renowned organizations, engineering and managerial personnel working as clients in construction field.

### C. Methodology

The method adopted in this study is communicating and taking feedback from personnel of all departments in top organization to identify the drawbacks in current process mapping flow. It includes working along with them to find out the solutions for each of the drawbacks. The study progresses by giving emphasis on critical factors which may lead to crises. It includes use of SAP as a monitoring tool. The study completes after proposing the improvements in process mapping flow and getting feedback from related organizations about its usefulness.

### D. Data Collection

The data collection includes getting information about current process mapping flow of the organization in detail. The written feedback are taken from the all department personnel and managerial personnel about drawbacks in the current process mapping flow of their organizations along with area of improvements. During study training of SAP software is used in order to use it as a monitoring tool.

## IV. ANALYSIS

During the study it is analysed that the crises can arise due to drawbacks in the system of the organization. Hence the attempt is made in this study to find out some of these drawbacks. For the same the common process mapping flow of all organization is analysed thoroughly by having discussions and feedbacks from the personnel of the different departments of different organizations.

After discussion with the industry persons it is observed that the organisation should have a proper predetermined system in order to mitigate crises that may arise at any stage of process. After interaction it is also observed that the mostly crises arises during the execution stage starting from release of drawings. Every organisation have their co ordination process mapping flow. But during study it is analysed that the process is not well synchronised. It has many loopholes which leads to project delay.

So, current co-ordination process of well renowned organisation is analysed thoroughly. And such loop holes are found out after brainstorming discussion with all the concerned department personnel i.e. estimation, contracts,

purchase, planning, store etc. The work is done for overcoming these drawbacks. The standards as well as checklists are designed for smoothening the co-ordination process. And using the same new improvement plan is designed. By referring this plan every department can understand their roles and responsibility at every stage of process.

The drawbacks found out are enlisted below:

1. Discrepancies and continuous changes in drawings.
2. Decision on RFI do not get communicated to concern departments.
3. Non issuance of detailed quantity to raise the requisition
4. Non issuance of PO to contractor in timely manner
5. Non availability of escalation matrix at site
6. Non involvement of site team in evaluation and finalization of new contract / contractor
7. Detailed study of contract document not done by site team
8. Bill certifications and payment recommendations not done in time

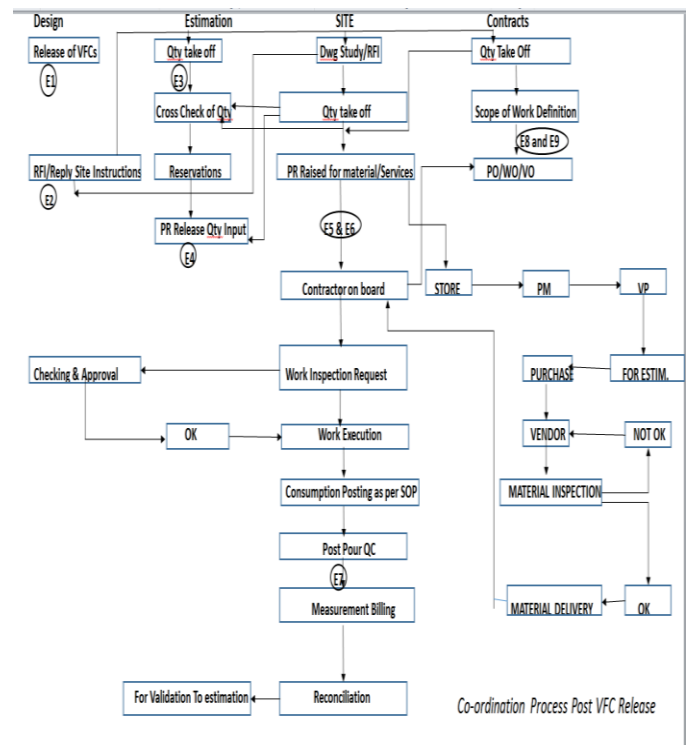


Fig 1 : Current Process Mapping Flow

To overcome these drawbacks the 8 types of checklists are prepared and highlighted in the new improvement plan which stated that when and who will refer which type of checklist.

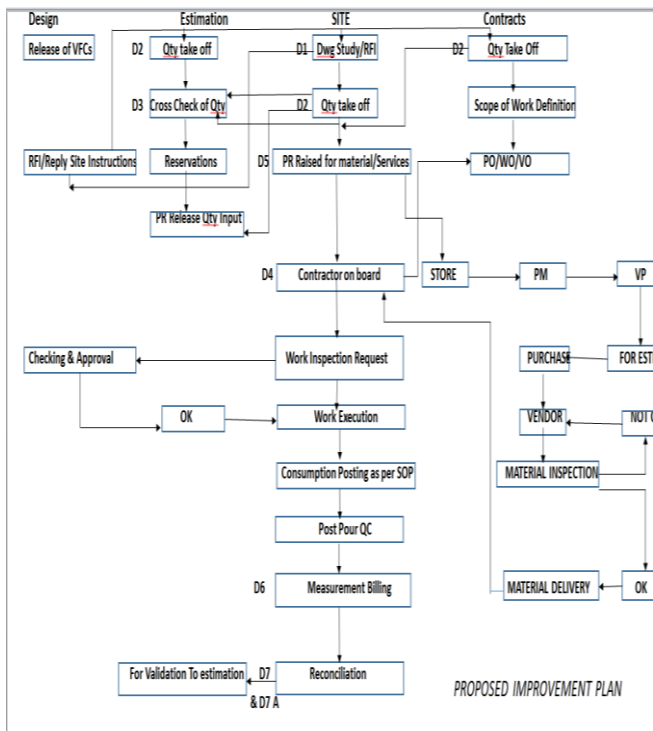


Fig 2 : Proposed Improvement Plan in Current Process Mapping Flow

The checklists are

1. Drawing checklist
2. Quantity take of checklist
3. Standard guidelines for quantity cross checking
4. Contract checkpoints
5. Checklist for raising PR
6. Checklist for contractor's / supplier's bill submission.
7. Reconciliation checklist
- 7 a Reconciliation format

The whole process mapping flow is monitored by using SAP software in order to smoothen the process. Different organizations can use different softwares to use it as monitoring tool. Some of them are ERP, HIGHRISE, and PRIMAVERA etc.

In SAP system we can have monitoring over inventory control of any project as well as current vendor outstanding. SAP helps in producing report of inventory ageing which means details of every material which is no. of days. It also helps to reflect the vendor outstanding along with the period of outstanding. Top management can easily come to know about these details by using SAP at anytime for any project. Hence it can take preventive measures to avoid any further crisis.

## V. CONCLUSION

1. To face the negative events happening in the market organization should have the proper interdepartmental process mapping flow. If system itself has the drawbacks then crises may arise due to the same.
2. Hence there is a need to modify the current process mapping flow of every organization after finding out its drawbacks.
3. A proper set of guidelines is need to prepare as done here for every department to smoothen the inter department coordination process.
4. The organizations must have the system planning, monitoring and controlling tool such as SAP to reduce the chances of arising the crises.

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