



# Project Management Using Event Chain Methodology

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## ABSTRACT

*Event chain methodology is an uncertainty modeling and schedule network analysis technique that is focused on identifying and managing events and event chains that affect project schedules. Event chain methodology is the next advance beyond critical path method and critical chain project management. Project management using event chain methodology is the uncertainty modeling approach practiced by project managers today to identify and eradicate such events. This paper tells about objectives, principles of the event chain methodology.*

**KEYWORDS :** Event chain Methodology, Monte Carlo Simulations, project management

### Introduction

**Event chain methodology** is an uncertainty modeling and schedule network analysis technique that is focused on identifying and managing events and event chains that affect project schedules. Event chain methodology is the next advance beyond critical path method and critical chain project management.

Event chain methodology helps to mitigate the effect of motivational and cognitive biases in estimating and scheduling. There are large number of risks or event chains and project activities create an impact in the different project phases. Project management using event chain methodology is the uncertainty modeling approach practiced by project managers today to identify and eradicate such events.

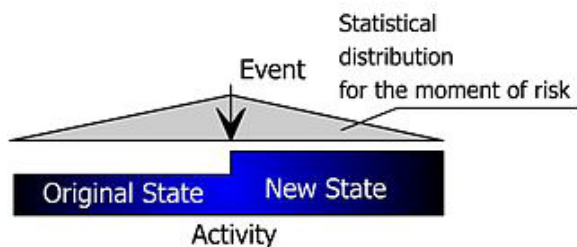
### Objectives

Uncertain situations occur at any phase of the entire project lifecycle, and in turn, lead to project mishaps. At times, project managers ignore the risk if it is outside of the project scope. The key objective of this methodology is to identify the event chain that affects the project outcomes.

- By identifying these event chains, project managers gain as follows:
- Simplify schedule network analysis models
- Ameliorate accurate project planning and meet deadlines appropriately
- Diminish the impact of known or unknown project planning prejudices
- Create an error-free project schedule by providing flexible layouts
- Increase the ability of the project managers to visualize the chain of events that are disturbing the project outcomes
- Give way to lot of quantitative analysis models that are very accurate to identify the potential events that are affecting projects

In essence, event chain methodology helps project managers identify and avoid project delays, revenue losses and overall project failures.

### Event Chain Methodology Principles Moment of risk and state of activity



### Moment of risk and state of activity

An activity (task) in most real life processes is not a continuous uniform procedure. Tasks are affected by external events, which transform an activity from one state to another.

One of the important properties of an event is the moment when an

event occurs during the course of an activity. This moment, when an event occurs, in most cases is probabilistic and can be defined using statistical distribution.

### Event Chains

Events can cause other events, which will create event chains. These event chains can significantly affect the course of the project. For example, requirement changes can cause an activity to be delayed. To accelerate the activity, the project manager allocates a resource from another activity, which then leads to a missed deadline. Eventually, this can lead to the failure of the project.

### Monte Carlo Simulations

Once events and event chains are defined, quantitative analysis using Monte Carlo simulation can be performed to quantify the cumulative effect of the events. Probabilities and effects of risks are used as input data for Monte Carlo simulation of the project schedule.<sup>[4]</sup> In most real life projects, it is necessary to supplement the information regarding the uncertainties expressed as an event, with distributions related to duration, start time, cost, and other parameters.

### Critical Event Chains

The single events or the event chains that have the most potential to affect the projects are the "critical events" or "critical chains of events." By identifying critical events or critical chains of events, we can mitigate their negative effects. These critical chains of events can be identified by analyzing the correlations between the main project parameters, such as project duration or cost, and the event chains.

### Performance Tracking with Event Chains

Monitoring the activity's progress ensures that updated information is used to perform the analysis. During the course of the project, the probability and time of the events can be recalculated based on actual data. The main issue with performance tracking is forecasting an activity's duration and cost if an activity is partially completed and certain events are assigned to the activity. The simple heuristic approach to this problem is to analyze the moment of risk, which is defined as one of the event parameters. Advanced analysis can be performed using a Bayesian approach.

### Event Chain Diagrams

Event Chain Diagrams are visualizations that show the relationships between events and tasks and how the events affect each other. The simplest way to represent these chains is to depict them as arrows associated with certain tasks or time intervals on the Gantt chart. Different events and event chains can be displayed using different colors. Events can be global (for all tasks in the project) and local (for a particular task). By using Event Chain Diagrams to visualize events and event chains, the modeling and analysis of risks and uncertainties can be significantly simplified.

### Event Chain Methodology Phenomenon

The use of Event Chain Methodology in project management produces some interesting phenomenon:

**Repeated Activity** -Certain external events cause the repetition of activities that have already been completed.

**Event Chains and Risk Mitigation** -When an event occurs during the course of a project, a mitigation plan, that is an activity that expands the project schedule, is drawn up. The same mitigation plans may be used for several events.

### **Event Chain Methodology Facts**

Project management using event chain methodology is a great model to identify an event or the event chains that are affecting projects. Occasionally, these methodologies also create interesting situations. The closed or completed activity in a project gets started again or the new activities that are not planned originally get triggered suddenly. However, a very well developed mathematical model in event chain methodology helps project managers to get rid of events causing issues in the projects.

### **Conclusion**

Using existing techniques such as the Monte Carlo Analysis, Event Chain Methodology manages events and subsequent event chains in project management.

Working by six principles, this methodology simplifies the risks and reservations associated with project schedules. Therefore, the project managers and other senior managers, who are responsible for project accounts should have a clear understanding on the Event Chain Methodology.

Since Event Chain Methodology is closely related to many other techniques used in project management, such as Gantt Charts and Monte Carlo Analysis, the project management should be thorough with all supporting techniques and tools for Event Chain Methodology.

### **References**

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