

Managing Change in Fast-paced Construction Projects

A White Paper with Red Marks

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Management Systems *focus*



ADDRESSING THE NEEDS TO MANAGE CHANGE IN FAST-PACED CONSTRUCTION PROJECTS TO ASSURE EFFECTIVE CONTROLS AT RELEVANT STAGES.

Change is constant and inevitable. It can be triggered by internal or external interested stakeholders. In the era of Industry 4.0, technology has been profoundly changing to support digital transformation and add tremendous values across industries. Hence, organizations are compelled to establish an effective change management process that takes care of agile customer needs as well as technological needs.

Construction project management poses multiple challenges throughout the project lifecycle. The primary goal of any project is to achieve intended quality results by investing agreed costs and delivering on time while achieving defined scope. This is crucial as changes may have consequences. For instance, scope change may drive plan, process, and resource changes. Changes can detour a project's critical path and its milestones. Based on their effects to contractual requirements, proposed changes can be classified as major or minor. A major change may need additional resources, time, or costs. The change management approach should be scalable to the extent required for successful implementation of the change.

Apply Critical Systems Thinking to manage changes: While considering the purpose and objectives of a project, analyze how the change would affect the organization and client satisfaction. Be tenacious and establish a clear understanding of relevancy and rationality of the change requirement. Due to tight delivery timelines, there may not be sufficient time to evaluate all aspects of a change. Review "How to Manage Change in a Crisis With No Time to Plan" at <https://www.prosci.com/blog/how-to-manage-change-in-a-crisis-with-no-time-to-plan> for more

PROJECT CHANGE MANAGEMENT

What is "Project Change Management"?

As part of project management strategies, the change management process assures understanding of needs and changes, associated risks, constraints, situational analyses, reviews, approvals, and resources to realize intended change levels.

What is "Integrated Project Change Control"?

An integrated approach or process of identifying, reviewing, assessing risk, approving, and managing changes across a project's lifecycle.

Why is project change management important for an organization?

A change request or directive, such as a Project Change Order, from a client could be received anytime during the project lifecycle. Hence, organizations must be prepared with strategies, plans, procedures, and tools to embrace rapid change needs to improve project deliverables.

KEY STEPS TO ENSURE EFFECTIVE CHANGE

1. Understand the need to change and the consequences if changes are not implemented effectively.
2. Apply an iterative approach to collect relevant info and identify change categories, such as Scope, Schedule, Cost, and sub-categories: Product, Process, Personnel, Technology, Tools, and Documents.
3. Engage stakeholders/SME and perform FMEA for major changes and determine risk priority number.
4. Evaluate potential change affected areas and resources, describe potential consequences if the change is not implemented; communicate the purpose and create awareness.
5. Engage subject matter experts, analyze risks and benefits, make the decision, and arrange approvals.
6. Use a plan for training, facilitation, coaching, or mentorship to implement change effectively.
7. Engage resources, implement approved changes, and verify implementation as planned and agreed.
8. Update and control documents with standards and practices to reflect changed levels.
9. Prepare a summary of the changed state and communicate the info to leadership and users.

SME: Subject Matter Expert(s), FMEA: Failure Mode and Effects Analysis





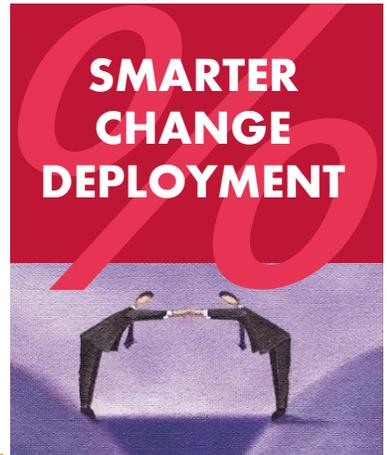
Getting the most from Change Management

Project scope change requests or orders are commonly received with amended drawings/specifications to enhance the intended results of the project.

A structured and systematic evaluation of subsequent impacts to a project shall be performed to ensure effective change management. Effects of a change on cost and schedule could be determined based on risk analysis on the following contributing factors:

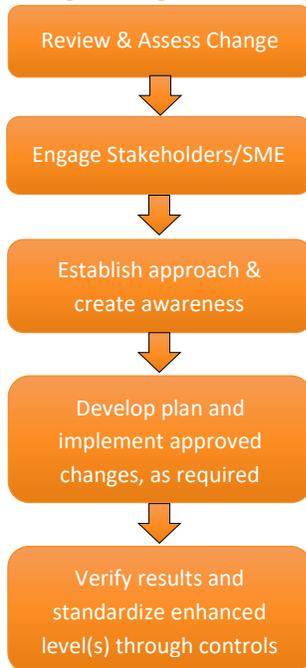
| Change Impact/Risk | High | Medium | Low |
|--------------------------------------|--|--|---|
| Method will change. | Must be changed to realize conforming asset. | Minor process adjustment(s) required. | The process is capable, no change required. |
| Machine or Equipment will change. | Must be changed to realize conforming asset. | Minor parameters' adjustment required. | The machine is capable, no change required. |
| Manpower/Competency will change. | Must be changed to realize conforming asset. | Identified training needs, planned to improve. | The personnel are capable, no change required. |
| Monitoring or Measuring will change. | Must be changed to realize conforming asset. | Minor amendments required to monitor. | The monitoring is capable, no change required. |
| Incoming materials will change. | Must be changed to realize conforming asset. | Minor document corrections are required. | The incoming materials' change is not required. |
| Working Conditions will change. | Must be changed to realize conforming asset. | Minor improvement required. | The work conditions will remain same. |

"In today's rapidly changing world, an agile approach to manage change has become a business imperative; failure to manage changes effectively could lead to project failure."
 AKHILESH MANCHANDA, P.Eng.



Engage subject matter experts, analyze existing and potential risk of implementing and not implementing proposed changes to gain significant insight and drive value-adding decisions.

SIMPLIFIED CHANGE MANAGEMENT FRAMEWORK



1. Review change requests to understand the requirements, purposes, and context; assess risk of implementing and not implementing each change.
2. Engage Subject Matter Experts to determine if the change adds value to the product/asset and, if it should be implemented, highlight cautions.
3. Establish an approach to realize the intended change, engage personnel, and create awareness about the change and its purpose. Form a temporary team of personnel with product/process knowledge and agreed objectives.
4. Review approved changes, their scope and resources required; prioritize actions and develop a plan to implement change, including construction processes, engineering, personnel, procedural, and sub-contractor's control changes. A change agent team should confirm alignment of required actions.
5. Monitor action implementation as planned, verify intended change levels, and standardize improved conditions/processes through appropriate documents. If the results are unacceptable, repeat the cycle as per the change management framework. The change agent team should confirm the implementation of required actions.

CAUTION:

1. SME (Subject Matter Expert) engagement is vital to succeed; ensure engagement at all levels based on extent of change span within the project.
2. Planning plays a vital role to manage the change effectively; ensure clear identification of the purpose and goals of the required change(s).



Akhilesh Manchanda is a professional engineer registered with APEGA and ASQ Certified Manager of Quality & Organizational Excellence. He possesses leadership experience in management systems' development and deployment, personnel competency management, enterprise digital transformation, and layered process auditing; he works with Midwest Pipelines Inc. as Management Systems Specialist, and with NAIT as CED Instructor. In this White Paper, he shares his ideas and recommendations to assist quality practitioners engaged in management systems' implementation. He does not represent any insight from his employers in this White Paper.

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