

EMBRACING CHANGE

as a Competitive Advantage



Infuse Knowledge into your Change and Configuration Management Process

In today's competitive business environment, there's no room for errors, delays, or missteps when it comes to building and maintaining products. That's why the change and configuration management process plays such an important role in every manufacturer's ultimate success (or failure).

Unfortunately, engineering change orders are also costly and time consuming. Continuous revisions and changes consume valuable resources – taking them away from higher-value activities. And, the cost of design changes increases exponentially the later a change is addressed in the development lifecycle.

ARE YOUR ENGINEERS WASTING VALUABLE TIME?

Focused on solving problems and developing viable solutions, engineers can spend 40% of their valuable time searching for the information. On average, these professionals consult with 13 or more unique data sources and can spend up to 30 to 40 minutes locating a single document on any given day.

And while one-third of engineering change orders are seen as being “critical,” with the potential to endanger overall project success, it's not unusual for an engineer to have to log into five, 10, or more separate systems in order to handle a single engineering change.

Not only do engineering change orders consume 30-50% of engineering capacity and 20-50% of tool costs, but they also present critical challenges for the organizations that rely on a steady flow of new and “renewed” innovations. According to a recent Aberdeen Group survey, for example, 85% of the respondents classified their change management systems as “broken.” Put simply, the majority of companies operating in today's competitive world know that they have a problem, but have no idea how to confront it or fix it.

A SMOOTH CHANGE MANAGEMENT WORKFLOW

Of great significance in the manufacturing field, change management helps companies effectively confront the many changes being driven by increased global competition, advancements in technology, and an increasingly demanding customer base. In systems engineering, the change management process involves:

- › Requesting the changes
- › Determining attainability
- › Planning, implementing, and evaluating the system changes using:
 - A change request, or a document containing a call for an adjustment of a system. A

LEADING MANUFACTURERS CITE CHALLENGES WITH EXISTING ENGINEERING CHANGE ORDER MANAGEMENT PROCESSES, REPORTING:

85%

management system is broken

30-50%

of engineering capacity

20-50%

of tool costs

39%

cite frequent design changes biggest obstacle

change request is declarative (i.e. it states what needs to be accomplished, but leaves out how the change should be carried out).

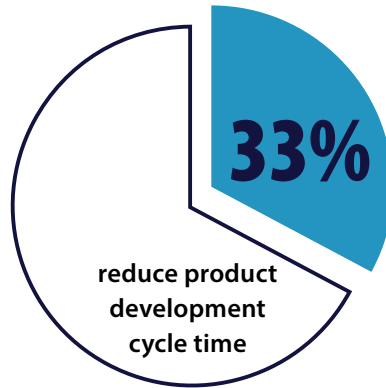
- Engineering change orders (ECO), which are used for changes in components, assemblies, or documents such as processes and work instructions. They may also be used for changes in specifications. ECOs are also called an “engineering change note,” engineering change notice (ECN), or just an engineering change (EC).

In an effort to improve their change and configuration management approaches, organizations have made investments in product lifecycle management (PLM) and other technology platforms. An Aberdeen Group survey cites a high number of “broken” change management systems. As this high number indicates, none of these platforms adequately tackle the critical challenges associated with change and configuration management.

HARNESSING THE DATA REVOLUTION

Infusing knowledge into the Change Management Workflow boosts engineering efficiency, including:

- › Creation of the change description and notes
- › Verifying that no prior ECO/ ECR exists for this change
- › Identification of all documentation impacted by the change
- › Understanding the impact to parent, child, and other component items
- › Establishing levels of impact – who must review and approve, and why
- › Research to obtain information about the EC



- › Extensive investigation and research in many areas depending on impact of change, and area of expertise: (i.e. Compliance analysis, structural analysis, manufacturing analysis, etc.)

In return, organizations gain in these three important areas:

BUSINESS VALUE


- › Improved customer satisfaction
- › Reduced product costs/ improved margins
- › Quick response to market opportunities and demands
- › Reduced warranty costs
- › Reduced operational costs

OPERATIONAL VALUE

- › Reduce the time required to process a change order (ECO cycle time)
- › Improved understanding of the complete extent and impact of the change
- › Execute a more effective change with less risk of additional change orders

PRODUCTIVITY VALUE

- › Reduce time spent in research at each stage of the workflow
- › More robust research and investigation of impact of change
- › Reduced risk of mistakes and missed opportunities

By conducting impact analysis, communicating accurate understandings, managing the change process across all impacted domains, and supporting complete traceability, organizations can improve customer satisfaction, reduce product costs, and more quickly respond to market opportunities and demands. 

GLOBAL AIRLINE MANUFACTURER STREAMLINES CHANGE ORDER PROCESS



Leveraging curated content including standards and product manuals among other data sources, available via Engineering Workbench by IHS Markit, one global airline manufacturer has drastically reduced the amount of time its engineers spend on change orders.

Using data to improve the understanding of the quantity and scope of tests needed to qualify a critical system, engineers quickly leverage schedules for new product parameters, for example, thus eliminating the need for repeated tests.

By leveraging drawing and design data, the engineering team minimizes resourcing and program costs and has reduced the number of man hours spent on change orders by 14,000 per year (across a typical 2.5-year-long design process).