Rational® software

Five CIO challenges addressed by better change management.

Dominic Tavassoli, IBM

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Change is inevitable, but refining the ways that your organization responds to change represents an opportunity for competitive advantage.

Introduction

In today's fast-paced, highly competitive world, change is inevitable. Organizations must respond to change to remain competitive and customer focused. Change is not only driven by forces outside the company, from enhancement requests to bug reports, it is also driven by economic, organizational and regulatory changes. Internal enterprise IT systems also need to meet service level agreements (SLAs), and provide the level of flexibility and adaptability to change that was promised by the implementation of service-oriented architectures (SOAs).

This white paper addresses five of the foremost change management challenges that CIOs have to meet and how organizations can turn these challenges into a business advantage.

Lower the cost of managing change and provide world-class support

The first challenge facing CIOs is the need to replace or upgrade existing costly IT change management systems.

The problem is that the communications for implementing change often come from various sources and in many different formats, including change requests, defects, bug reports, enhancement requests and problem reports. Change data is generally managed using tools such as Microsoft® Excel and IBM Lotus Notes® software. But even more frequently, the data is described in e-mail threads, phone conversations and staff meeting minutes.

Also, many organizations lack a common process and supporting products for handling change requests because they appear to be overly expensive. Some change management systems are costly to maintain—you must implement processes, document workflows, automate reporting and integrate the change management system with other IT systems.

With an enterprise change management (ECM) solution, organizations have a major opportunity to reduce operating costs while managing change effectively and efficiently.

This white paper identifies five opportunities to exploit new efficiencies in change management.

Implement enterprise change management

Enterprise change management solutions allow you to replace multiple costly tools with one common system with a unique repository that consolidates change management data and processes. Modern ECM solutions are highly scalable, allowing concurrent access by thousands of users around the world. They also enable Web-based access for a lower total cost of ownership (TCO) and deployment. ECM solutions provide Web services and application programming interfaces (APIs) for easier, cost-effective integration with the software used by all teams and stakeholders, thereby reducing the "silo effect."

Organizations can lower costs by enabling a paperless process and reduce travel costs by promoting global access, reporting and virtual meetings. For instance, a change control board (CCB) no longer has to meet physically to discuss and decide issues—the problems associated with scheduling and the time spent traveling can be avoided altogether with online realtime reports and decision making.

Figure 1. Enterprise change management brings all stakeholders together.

Enterprise change management brings stakeholders together in a common environment designed to eliminate barriers to communication and coordination.

The change process is at the heart of any organization. Implementing, maintaining and documenting this process using multiple, poorly suited tools can be a major overhead expense—one of the main reasons why the change process is often neglected. By implementing a common ECM solution, organizations can implement the right processes and enforce them. In fact, some vendors provide ready-to-use process packages that have already been successfully deployed within other organizations. This is a low-risk entry point that can be adapted and extended to meet the organization's specific needs.

Figure 2. Easy-to-understand processes increase user adoption.

Simple steps to successful deployment
To ensure a smooth transition to a common ECM solution, migration utilities help transfer historical data, while ECM integration capabilities coordinate with the legacy systems for a progressive implementation.

In addition, solution rollout requires a high level of user acceptance. This critical step can be achieved if the ECM solution has an intuitive, role-based interface, is easy to use and provides clear added value.

ECM solutions supply role-based interfaces that display the right information in the right format for each type of user profile. A developer may see assigned task information complete with priority and context, whereas a department manager might see a list of critical issues, productivity metrics and general trends. The display itself should match the organization's visual identity, including the use of color-coding, logo and vocabulary.

The solution should become part of the corporate culture and be easily accessed from the corporate Intranet, facilitating end-user acceptance. This approach reduces development costs and total cost of ownership while boosting productivity.

Improve governance and compliance

Today, organizations must meet an increasing number of compliance requirements for regulations and support various appraisal systems including, Sarbanes-Oxley, the Health Insurance Portability and Accountability Act (HIPAA), Basel II, and the UK's Data Protection Act, as well as such initiatives as Capability Maturity Model Integration (CMMI), Software Process Improvement and Capability dEtermination (SPICE), International Organization for Standardization (ISO) 9000, Agile, Six Sigma and IT Infrastructure Library® (ITIL®) standards. Meeting these requirements must be planned, implemented and demonstrated. Because making the changes needed to meet these requirements always comes with the risk of poor communication and coordination, change management is essential for successful governance and compliance.

Ensure data integrity and consistency

The first step to governance and compliance is improving control over the organization's data. IT must ensure the data's integrity, security and reliability because the information is used for both executive decision making and traceability demonstration. Checking for data conflicts, an even greater challenge, requires a lot of manual work and has a high probability that errors will be missed.

Enterprise change management solutions are the answer. They provide customizable interfaces for consistent data capture across the organization. And, by providing a central repository, they avoid conflicts and enable fast cross-checking report generation. Controlled access rights and e-signature functionality ensure that the data is reliable, secure and safe from unauthorized modification.

Enforce a controlled, repeatable process
The second step in satisfying governance and compliance requirements is to implement a consistent, documented workflow and change process across the organization. Before investing in approved, documented processes, IT must be able to enforce the processes and have the ability to prove that they are being followed.

ECM solutions provide customizable workflow engines that allow organizations to define the states, transitions and rules of their process. Ready-to-use process packages can simplify and accelerate deployment. Web interfaces bring global teams of analysts, developers, testers, managers and production specialists together by providing a common, repeatable process to managing change requests.

Role-based, formalized use of the change management system brings each category of user into the process from his or her own perspective by displaying the information relevant to his or her role at each step. This ensures that each end user will be aware of the benefits the process provides, reducing push-back.

Provide audit information and reporting
In addition to compliance, adherence to standards must be demonstrated in order to satisfy regulatory requirements. Audits—both internal and external—require extensive reporting and metrics on different types and levels of information. Traditional, disparate change systems make it extremely difficult and time consuming to produce the necessary reports, generally bringing many teams to a standstill while data is gathered. Management, lacking realtime, ongoing information, can rarely anticipate the outcome of the final verdict. They are not aligned with governance and due diligence objectives.

By deploying an ECM solution, management can produce reports and charts generated in realtime from the data repository, without impacting team productivity. Audits are responded to more quickly and with confidence. The common repository provides overall visibility into process, trends and progress.

ECM helps to facilitate compliance by:
- *Ensuring data integrity and consistency*
- *Enforcing controlled, repeatable processes*
- *Providing auditing information and reporting*

CR ID	Status	Synopsis	Resolver	Resolution Date
4	resolved	Pie chart labels overlap	Tom Developer (tom)	05/17/2007 15:33:48
6	resolved	Installer fails on AIX 5.3	Lisa Developer (lisa)	05/17/2007 15:34:20

Resolved within the last two weeks (2 found)   Edit | Delete

Figure 3. Realtime status reports help respond to audits faster.

These reports can also be leveraged to provide ongoing internal visibility into quality initiatives and corporate targets, and can help organizations create employee incentives.

This total approach to change management ensures consistent and accurate data and provides uniform change processes across the organization, allowing it to meet the stringent requirements associated with today's regulatory environment.

Improve productivity while reducing costs

Increase quality across the lifecycle

Errors introduced when capturing or modifying a requirement and defect content in-evitably lead to costly rework and maintenance. By addressing this issue, organizations can tackle a major (though often overlooked) cost center.

In addition to compliance demonstration, reporting provides additional internal visibility that can add value to ongoing projects.

By providing consistent data-capture forms, and communicating modifications and ensuring traceability across teams and subsystems, ECM solutions help teams avoid or identify errors early in the lifecycle, before the cost to fix them escalates. This reduces uncertainty regarding the schedule, making it more likely that time-to-market targets will be met. Overall cost of development is reduced, while at the same time team motivation is improved by the elimination of frustrating rework.

Lower the cost and risk of responding to change
Organizations need to respond to change in a controlled and timely fashion in order to remain competitive and meet evolving customer expectations.

To help address change faster and at a lower cost, ECM solutions automate notifications to appropriate team members, track responses and make discussion histories available to all relevant stakeholders. By following change dependencies and status of implementation and deployment, they can formally analyze the impact of a change on the product across the lifecycle and the supply chain, including both technical and commercial considerations.

Preparation, implementation, review, concurrent approval and implementation of changes are expedited online across the globe. Change reports help identify priorities, and triage facilities rank requests in terms of importance so they can be addressed efficiently. This agility shortens the error-handling cycle and helps organizations become more competitive.

Communicate and coordinate
Not only does an ECM solution improve your change process, it also provides an in-valuable workflow backbone. Organizations can ensure that they get the right supporting product data to the right people in a timely manner. They can communicate product and priority changes in near realtime regardless of their location.

ECM solutions help to improve productivity and cut costs by identifying errors or requirement changes during the production lifecycle and proliferating change notifications across the team.

ECM solutions avoid confusion and miscommunication between stakeholders by allowing organizations to control what information is entered throughout the lifecycle, in each state and for each transition. Fields can be made mandatory (budget information when deciding to fix a defect, for instance) and the actual content quality can be enhanced (e.g., selection from a context-sensitive drop-down box). Information can also be provided on request; for example, a user can subscribe to receive updates on a particular issue.

In addition to improving change processes, an ECM solution provides a workflow backbone that helps to prioritize tasks and ensure that the right parties have access to the right information at the right time.

Many modern methods and models recommend regular, reliable reporting to increase team efficiency. These include:

- *Scrum reports on the work accomplished by each team, issue discussions, priority review and assignment.*
- *Burn-down charts that display the work left to do versus the time left to do them, which are useful for predicting when the job will be completed.*
- *CMMI causal analysis reports*
- *Team to-do lists*
- *Release notes*
- *Requirements-to-code traceability reports*
- *Defect trend analysis*
- *Defect aging reports*
- *Team work balance analysis*

ECM can also help to coordinate work across agile development processes.

demo (14%)   jay (43%)   lisa (29%)   tom (14%)

An ECM solution makes it easier to coordinate work across disparate geographies, helping to ensure that in-house and outsourced developers are collaborating effectively.
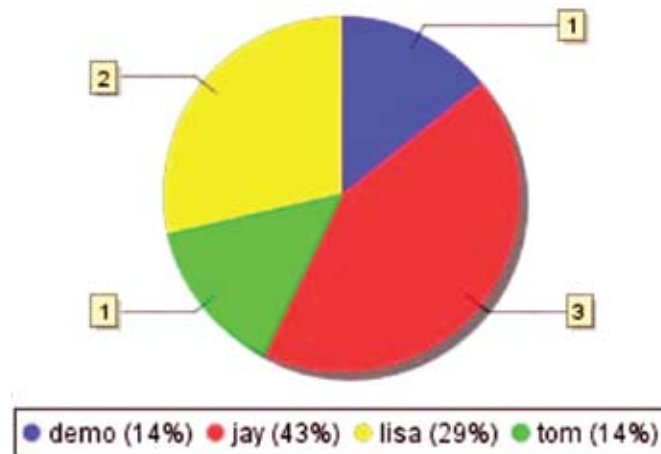
Figure 4. Reliable reports increase team efficiency.

Moving to a consistent change management process is necessary before generating consistent, reliable reports for communication and coordination. Enterprise-level solutions should provide the functionality needed to generate the reporting levels that are relevant to the organization's business.

By reducing or even eliminating costly rework and maintenance, you can cut development costs, lower the risks associated with change and bring better products to market more rapidly.

ECM allows you to build a knowledge base that can be leveraged to solve problems in your current development project using insights and solutions gained during past experiences.

Capture, manage and leverage knowledge about change

Leverage information for current project success

Research into why projects succeed or fail often points out the obvious—your project managers and their teams need accurate data. They need to know, for example, if a defect of a given type has already been addressed in the organization or what modifications a team member no longer on the project had made before leaving.

ECM provides a knowledge base that can be leveraged by project teams. The change database can be searched for previous defects to identify past solutions to similar issues, and how well they succeeded. The impact of team turnover can be controlled by automatically recording comments, actions and decisions. In fact, the system not only can become the reference point for driving internal activities, it also can capture information from partners, subcontractors, and outsourced or offshore teams. Project managers can use this information to increase the chance of project success.

Leverage information for future project success

A reliable, consistent change repository is a key factor in ensuring the success of future projects. Best practices recommended by the CMMI include capturing metrics on all projects and leveraging them to improve the management of future projects. By continuously and dynamically improving your development process, you can more accurately predict costs and schedules.

Overall, the flow of accurate and consistent data to all stakeholders provides a firm foundation for successful project realization.

Highlights

***Measuring and tracking develop-
ment processes can help you
better project timelines and cost for
future projects.***

***Process tracking can also help
you to spot trends such as consistent
development bottlenecks or com-
mon points of error introduction.***

Measure and improve your development process

Improve your process

Process improvement is a key goal for most organizations. Implementing a common, consistent development process across all projects is the first essential step toward achieving the goals of deadline and cost control, identification of weak points and investing in the appropriate areas. Standardizing on a process that can be continuously improved is not only necessary for current operations, it is also crucial if the organization is to grow while remaining competitive.

As errors and faults are identified throughout the development process, they are captured in the ECM solution. With the information entered during the defect analysis and resolution phases, you can analyze each issue and answer these kinds of questions:

When was the problem found?

- *When was it introduced into the process?*
- *Was the problem identified or missed during the inspection phases?*
- *What are the costs associated with the problem?*

The CMMI refers to this activity as "causal analysis." For example, reports may show that a large number of inconsistencies were introduced in the requirements phase, only to be found during the coding phase. This, for example, could point to the need for a longer peer review phase before requirements are approved.

By providing high-level, tangible information on the weak links of the process, ECM allows the vice president of development to identify where to focus process improvement funds in an objective, quantified way.
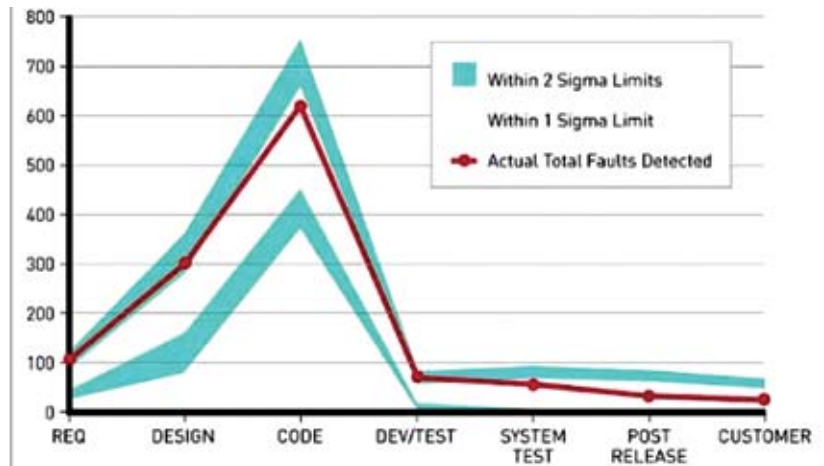
Figure 5. It's valuable to track the efficiency of process improvement initiatives.

Automated reports can be used to demonstrate success and justify decision making

Improve your success rates and justify your actions

Improving your development process can be challenging. Because the cost of change is more apparent than the eventual benefit, most organizations struggle to prove that their process decisions have had an impact on the bottom line. As a result, requests to "work smarter, not harder" rarely come with the budget or authority to implement the necessary changes.

The reports provided by ECM solutions and their dashboards display the evolution of key metrics for all projects. Armed with trend reports, the process improvement team can prove the impact of their decisions and justify the expenditures on change management products. Not only does this make the case for process improvement much easier, it also facilitates discussions between field personnel and senior management. By demonstrating a substantial ROI, it is easier to build management trust and improve the development process.

By implementing a consistent development process, project teams are able to quickly and cost-effectively create the applications and products the organization needs to meet its business goals.

IBM Rational Change for enterprise change management
IBM® Rational® Change, a Web-based change management solution for request tracking and reporting, is designed to increase quality by reducing the risk of unwanted or unauthorized changes being implemented. It also helps increase accountability by comprehensively tracking change requests. To support an integrated development environment, IBM Rational Change can integrate with existing development and help desk solutions.

Telecommunications vendor bolsters market share with an ECM solution from IBM
A large telecommunications vendor was losing market share due to time-to-market problems associated with launching new mobile phone software. The issue was one of complexity—to keep ahead of its competitors, the company marketed many different types of mobile phones with frequent release cycles that also involved updating the software of each mobile phone.

Existing in-house change management, which relied on IBM Lotus Notes software, Microsoft Excel spreadsheets and e-mail, simply could not keep up with the extensive flow of errors. Developers could not quickly resolve problems. There was no lifecycle management to speak of, and no traceability to the software implementation or the organization's quality center. The company needed a way to efficiently manage the continuous error flow and provide traceability to the affected software modules.

The telecommunications vendor evaluated a number of change management suppliers' products and conducted extensive proof-of-concept reviews. IBM Rational Change was the clear winner, and it was easily integrated with the existing configuration management process.

I***BM Rational products offer a complete family of development tools that can be integrated with other leading solution.***

IBM Rational Change is being used for both error and issue management. Over 9,000 users are working with the software as their enterprise change management tool for error management. Over another 6,000 users conduct issue management with the software. Future plans call for the integration of IBM Rational Change with other products, such as IBM Rational DOORS®.

IBM Rational Change helps simplify the change control process and enable organizations to respond systematically to change requests from both internal and external sources. Via the IBM Rational Change solution's flexible change management capabilities, IT and engineering teams can automate processes for tracking and managing changes to:

- *Business goals.*
- *IT processes.*
- *Product requirements.*
- *Systems and embedded software.*
- *Software applications.*
- *Web sites.*

With a central repository for change management, IBM Rational Change provides an integrated change control process that helps improve communication and collaboration throughout the development lifecycle and across the enterprise.

Conclusion

Software development teams, challenged with producing complex, high-quality software products, often spend too much time coordinating their development efforts. These coordination challenges, along with increasing competitive pressure and fast time-to-market expectations, have prompted many organizations to look for better, more efficient ways to manage development.

Organizations need to reduce the costs associated with change management while still providing users with world-class support. Change also brings with it the chance for error, which can lead to problems associated with governance and compliance—a major issue in today's highly regulated business environment. Enterprise change management solutions allow development teams to ensure data integrity through a controlled, repeatable process. ECM solutions also improve developer productivity, resulting in reduced cost of development and faster time to market. With ECM solutions, organizations can also capture, manage and leverage their change management knowledge to improve current development processes and future success rates.

Change and configuration management technology helps organizations meet these challenges while providing numerous opportunities for substantial return on investment.

For more information
To learn more, please visit:

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