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Winning the Performance Battle: Standardizing Best Practices with Technology

Executive Overview

To maintain a strong competitive position in a volatile market, executives must find new ways of increasing efficiency. This white paper highlights the important elements and key benefits of standardizing business processes and operating procedures based on uniform, organizationwide technology. It also serves as a guide for engineering and construction (E&C) firms choosing the right technology to promote standardization across their organizations.

Introduction

The changing dynamics of today's construction market are having an impact on already thin profit margins. Economic conditions, combined with other factors—including increased regulatory demands, the retirement of a large group of experienced professionals, and the rising cost of claims—present significant challenges to corporate growth in the near future.

As a result, forward-looking enterprises are adopting a progressive approach that calls for consistent, repeatable business processes and operating procedures supported by the adoption of uniform technology: standardization. According to a recent survey of more than 100 construction management executives, the percentage who say their firms are already “extremely homogeneous” in their information technology rose from 36 percent in 1999 to 45 percent today, with 58 percent saying they hope to move toward an even more standardized environment in the near future.

Why Standardization?

In today's global marketplace, construction continues to be one of the industries most vulnerable to fluctuating market conditions. In fact, individual project profitability can be hindered by a wide range of external and internal factors, including rising materials costs and contractor-caused delays. If a firm is not aware of problems before they affect projects and equipped to respond accordingly, the results can be devastating.

Dillingham Construction, a US\$350 million firm with 45 years of success, lost profitability for a full year because of problems encountered on a few projects. The company had to finance the projects to get them completed and amassed a debt level so high that it simply couldn't stay afloat. Such a fate is not reserved only for smaller firms. J.A. Jones, one of the federal government's largest contractors, with a No. 14 ranking on *Engineering News-Record's* Top 400 Contractor list and more than US\$2.2 billion in revenue, was literally wiped out by a couple of failed projects. In an interview shortly after the J.A. Jones Chapter 11 bankruptcy hearings, a former top executive said he had witnessed cascading fallout from a few unprofitable projects. That fallout led to lower bonding capacities, which resulted in less work, triggering a mass exodus that eventually led to the company's demise.

Project-driven organizations running tens and hundreds of increasingly complex projects face a clear problem in managing the business successfully. With each project meaning potential liability, executives must maintain clear visibility at the individual project and program levels and into the cumulative effect of all projects and programs on the overall organization, in order to protect and deliver corporate profitability.

Traditionally, in the E&C business environment, a single project focus has driven project-level purchasing decisions. Therefore, technology solutions that are used to manage and execute projects vary greatly across an organization, making it very difficult to glean project information across multiple project-level application silos. For E&C firms, the one common system that all projects tie into is the financial system—this system captures invoices and payments as they happen but not the actual project work as it takes place. The one common financial system reports on events after they've occurred when either no further action is possible or, at best, only reactive action or mitigation can be undertaken.

Cross-Organizational Visibility

To enable proactive management of projects and programs, organizations must uniformly couple technology solutions with best business and project practices. Standardizing business processes around enterprisewide technology provides a way to bring order and visibility to an otherwise chaotic data and process environment.

Standardization provides E&C firms with the multilevel visibility they need in order to recognize deviations and problems before they have an impact on project performance and profitability. In a transparent environment, everyone from clients and executives to contractors and even outside parties knows exactly where a project stands at all times.

With standardization, an E&C firm defines its own workflows and enforces them at every level. This ensures accountability for every task and creates an audit trail for easy compliance with regulatory requirements and protection against claims at all levels. Plus, each member of the team can fulfill the responsibilities of a designated role more effectively and efficiently.

Processes are streamlined and automated, so users can spend more time on strategic, collaborative management and less time pushing paperwork and searching for the tools and information they need in order to do their jobs. In addition, because all processes are based on a common set of data and operating procedures, there is never an issue with accuracy or consistency.

Danny Scott, manager of project controls for BE&K Construction Company, says, “Standardization has made us more centralized and has enabled us to share information easily. And because everyone sees the same information, they can collaborate across units and do quicker, more accurate analysis of schedule input.”

Shawn Pressley, project engineer for Hill International, Inc., a construction management firm, says, “Because all the data is in one place, I can stop chasing team members for information and can concentrate on managing project issues. The key to any project is the speed and accuracy of the information and the ability to deliver that information to the people who need it. With this level of access and visibility, I can now see the effects of contracts on schedules and costing without having to shuffle through different reports or log on to separate software applications.”

From the shrinking labor pool to the high rate of attrition, standardization enables organizations to better navigate the complicated staffing issues that are a routine element of the E&C industry. In a standardized environment, all staffing resources are optimized—new employees are up and running faster; intellectual capital is retained in the system after key employees leave; and active staff is maximized through streamlined, automated processes. Scott says, “Standardization provides scheduling templates for activities and logic, reducing project startup times and the risk of errors. Plus, it greatly reduces training time for new employees.”

In a standardized environment, every party critical to completing a project on time and within budget is working with the same tools and the same information—ensuring maximum efficiency and profitability.

"Standardization across the enterprise has made us more centralized, so we can share information easily. That lets us continue what we were doing but work more efficiently in this ever-changing business."

Danny Scott, Manager of Engineering Project Controls, BE&K Construction Company

Benefits of Standardization

Standardization is a progressive approach to E&C management designed to increase the efficiency of operations—and thus the profitability of projects. A standardized approach enables the following key benefits:

BENEFITS OF STANDARDIZATION

PROCESS BENEFIT	BUSINESS BENEFIT
Maximized and codified efficiency	Better-protected profit margins
Visibility	Proactive project management
Collaboration and communication	Improved services and quality across geographic boundaries; increased accountability
Improved compliance	Reduced regulatory burden
Retained intellectual capital	Optimized staff resources

Maximized and Codified Efficiency

Operating each project with maximum efficiency is the key to protecting profit margins in the competitive E&C industry. Standardization enables firms to implement standard processes and operating procedures and customized workflows based on tried-and-true best practices and to easily enforce them throughout the firm. Thus, a standardized environment ensures that each and every team member is using only the most efficient and effective methods to complete specified jobs.

Enhanced Visibility

Standardization creates a highly transparent environment in which all parties have the visibility they require to know exactly where a project stands at all times. This transparency enables proactive management, making it possible to spot potential issues before they have an impact on project performance and profitability. In a standardized environment, all project information is

"Having information about what has occurred, and having one system to manage the resolution of any problems, is vital. We have seen a great deal of tangible and intangible improvements in our business processes and performance. We now handle the entire life cycle of a contract from within the system, whereas before it was all done manually with a lot of paperwork."

Sulaiman Sultan Ali Mohammad, PMP Team Leader, KNPC Integrated Management Systems Project

accurate, up-to-date, and complete, because it is combined from all systems and applications. With Web-based technology, it can be easily accessed by all contributors at any time, from any location.

Advanced Collaboration and Communication

Standardization provides all construction stakeholders with the tools and resources they need in order to collaborate more effectively than ever on projects of all sizes and types, across geographic boundaries. With a common set of codified processes and operating procedures, and a defined workflow with which to carry them out, firms can expedite project communications, reviews, and approvals; reduce errors and mitigate risk; improve work practices; and accelerate project processes from start to finish—with every activity recorded in a single system. For E&C firms, this means increased accountability, reduced claims, and better utilization of human resources.

Compliance Support

Sarbanes-Oxley and other complex regulatory requirements have increased the reporting burden and the demand for an audit trail and clear documentation tracking. Standardization helps organizations meet this demand, and subsequently lower operational costs, by streamlining the way documents are managed and stored as well as enforcing uniform processes that facilitate control, monitoring, and continuous improvement.

Retained Intellectual Capital

With an unusually high rate of attrition and a shortage of skilled labor, E&C firms must optimize staff resources to protect profitability and remain competitive. In a standardized environment, it is easy to do this by integrating the intellectual capital of past and present staff into standard operating procedures. Plus, with staff members operating as efficiently as possible according to the established workflow, their time and efforts are maximized.

Smart Technology Choices: Step 1 Toward Standardization

Due to the fragmented character of the business, the construction industry has been historically slow in adopting software technology. In fact, as the rest of the industrial economy on average still achieves annual productivity gains of 1.7 percent, construction productivity levels have been virtually flatlining since the mid-1960s, according to the U.S. Department of Labor. Many experts have warned that one of the principal reasons for this stagnation is the failure of construction to quickly and/or effectively adopt technology.

In recent years, however, the evolution of communications and field data technology has given way to solutions that can help E&C companies track, analyze, adjust, and improve operations in response to real-time information—spiking the interest of otherwise skeptical executives. This slow and sure technology adoption rate is creating a wide chasm between the early adopters and the rest of the field—and causing concern among the latter that their companies will not be able to stay competitive unless they adopt technologies more quickly.

But in today's highly competitive construction market, it is not only the company that adopts technology quickly that will come out on top—it is the company that adopts technology intelligently and strategically, with the future in mind. Even companies that are starting from square 1 can pull ahead of the competition by choosing a system that promotes organizationwide efficiency and collaboration to increase profit margins and make a bottom-line difference.

Standardization is an intelligent, forward-thinking approach, and it must extend to an organization's technology choices in order to be effective. A standardized technology environment is built around systems that can operate on a single platform and communicate openly with one another. A standardized construction management solution provides a complete system for managing scope, schedule, job cost, changes, risk, stakeholders, performance, and more on every project and program, from concept to delivery.

Choosing the Right Technology to Support Standardization

An effective standardization solution has the following critical characteristics.

Role-Based Functionality

To promote use efficiency and ease of use overall, a solution system must weed out irrelevant data and features and provide users focused access to the information and tools they individually need in order to effectively carry out their responsibilities. The solution must offer customized dashboards that incorporate relevant data and functionality from different applications and sources—and make it highly accessible in a single, easy-to-read window.

In a poll taken by the U.S.-based Construction Industry Roundtable, leading CEOs in the E&C industry discussed the issues they felt would be key barriers to expanding, robust growth in the construction market. The results were as follows:

- 73.9% saw the lack of sufficient private funding sources and/or adequate reliable public funding as the most problematic.
- 34.8% believed litigation impediments and costs would burden growth.
- 30.4% deemed retaining sufficient skilled employees/laborers a source of concern.
- 56.5% thought regulatory delays and barriers would cause a problem.
- 26.1% identified insurance and bonding limits as a problem.
- 21.7% concluded that environmental and other opponents were a culprit.

Source: Construction Industry Roundtable

Executive Dashboard

To catch problems before they have an impact on profitability and productivity, executives need clear visibility into what is going on with every project and with the general health of the company. So upper management needs access to different information and analysis tools than anyone else in the organization. A solution around which to standardize must provide an executive dashboard displaying standard key performance indicators (KPIs), such as time to completion, by which users can easily monitor profitability, efficiency, performance, and other factors. Also, dashboard and analysis customization should enable executives to create additional KPIs based on critical metrics to track results at the corporate, project, team, and individual levels. The executive dashboard must also facilitate accurate, productivity-based forecasting with up-to-the-minute project health reports and easy-to-read graphical trends and forecasts.

Integrated Data Repository

An integrated data repository is a by-product of the integration of all systems and applications. It is critical to cost- and time-efficient operations as well as effective, accurate reporting; stakeholder communication; claims resolution; and KPIs, such as cost-to-completion. Without an integrated data repository, current and historical operational data is stored in various system-specific silos, leading to an exponentially increasing amount of replicated data with no correlation for carrying out business-critical functions and/or making executive-level, strategic decisions. An integrated data repository ensures a “single version of the truth,” so everyone will be working with the same up-to-date, accurate, and consistent information.

Workflow Engine

Project-driven organizations differentiate themselves in how they adopt, develop, and execute best practices and standard operating procedures (SOPs) across projects. A solution environment for standardization must provide and/or enable a chosen workflow engine to establish and codify existing best practices and SOPs without changing established procedures to

"Because of the complexity of the project, it would have been extremely difficult, if not impossible, to have managed such an undertaking and meet our deadlines without [standardization]. It allowed us to keep all of the balls up in the air and continue on the mark. No matter where you were, if you were connected to the project, complete access to the information you needed was available via the Internet. And, as we leave, it's an operating museum and everything we've done has been archived, including agendas, meeting minutes, costs and tracking of issues. So, that information is always available if needed in the future."

David Rupp, Project Director, Hill International, Inc.

accommodate the limitations of implemented technology. Any workflow engine must be customizable in order to adapt itself to the organization's expertise—now and in the future—as this expertise develops. Also, document versioning and audit trail capabilities are critical to maintaining accountability and clear record-keeping throughout any workflow.

Conclusion

Organizations must move away from project-based technology and embrace enterprisewide solutions to create the transparency necessary to prevent one bad project from causing disastrous effects.

Uniform business processes based on best practices increase efficiency, accuracy, and effectiveness. This standardization provides enhanced visibility that enables all organizational and project stakeholders to leverage consistent information to prevent errors, proactively manage change, and improve the profitability and timeliness of every project.



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