

Achieve Operational Excellence through Process Management Automation

By Timothy Callahan & Nick Gaich

Though the definition of process management may vary slightly among sources, its purpose of improving an organization's operational performance and increasing agility remains universal. For decades, case studies and success stories have abounded in such industries as manufacturing, automotive, telecom, retail, education and government as more companies implement process management initiatives, including Lean and Six Sigma. On the BPM Resource Center Web site alone exists several examples of organizations that have significantly improved efficiencies by focusing on key processes:

- Motorola experienced an 85 percent improvement in problem discovery and a 75 percent reduction in problematic orders.
- CA Water Boards saved 1850 staff hours and 1500 accounting hours annually on time sheet submittal and tracking.
- The U.S. Marine Corp. lowered procurement operation costs by 50 percent, reduced procurement time by 60 percent and saved \$9 million in one year.

Process management—especially the Lean principle—is ubiquitous across multiple industries because it is effective and highly adaptable. It can be applied to entire organizations of any size, focused on individual departments or even singular processes. And when implemented in conjunction with the proper technology, an organization can reap significant benefits, including automated enhancements, better quality control and outcome, efficiency, an improved team concept, staff satisfaction and longevity, and an overall improvement in job satisfaction.

According to an April 27, 2007, article in *CIO* magazine, process management allows organizations to “define, execute, manage and refine processes that involve human interaction, work with multiple

applications and handle dynamic process rules and changes.” Also listed are the types of processes that lend themselves to a process management solution, including those that are:

- Dynamic
- Predictive
- Involve people, multiple divisions, departments, etc.
- Complex, i.e., those that require orchestration by a variety of people
- Measurable with mission-critical metrics that can directly improve the organization
- Dependent upon more than one legacy application, e.g., EMR and ERP
- Inclusive of exceptions handled manually
- Inclusive of exceptions requiring a quick turnaround

By incorporating technology to automate processes, organizations' capabilities to better leverage total resources, drive adoption, and ultimately, sustain desired efficiencies are cultivated by such measures as Six Sigma and Lean. This level of automation not only captures the data necessary to drive continued improvement within an organization, it supports efficiency initiatives by both monitoring and measuring behavior fluctuations without additional effort. Process management automation (PMA) also promotes quality control, communication and visibility to a dynamic environment.

While automation often plays a vital, complementary role in process management, it is important to understand that it is a separate entity. Process management experts agree that technology alone isn't a panacea for process-related issues. Every opportunity requires an evaluation of inefficiencies and the implementation of a specific solution, which can include both training and discipline. In fact, taking into account the human factor is a vital aspect of successfully improving processes. But by focusing

Characteristics of a Continuously Learning Health Care System

Science and Informatics

Real-time access to knowledge—A learning health care system continuously and reliably captures, curates, and delivers the best available evidence to guide, support, tailor, and improve clinical decision-making and care safety and quality.

Digital capture of the care experience—A learning health care system captures the care experience on digital platforms for real-time generation and application of knowledge for care improvement.

Patient-Clinician Relationships

Engaged, empowered patients—A learning health care system is anchored on patient needs and perspectives and promotes the inclusion of patients, families, and other caregivers as vital members of the continuously learning care team.

Incentives

Incentives aligned for value—In a learning health care system, incentives are actively aligned to encourage continuous improvement, identify and reduce waste, and reward high-value care.

Full transparency—A learning health care system systematically monitors the safety, quality, processes, prices, costs, and outcomes of care, and makes information available for care improvement and informed choices and decision-making by clinicians, patients, and their families.

Culture

Leadership-instilled culture of learning—A learning health care system is stewarded by leadership committed to a culture of teamwork, collaboration, and adaptability in support of continuous learning as a core aim.

Supportive system competencies—In a learning health care system, complex care operations and processes are constantly refined through ongoing team training and skill building, systems analysis and information development, and creation of the feedback loops for continuous learning and system improvement.

Source: Institute of Medicine study, Best Care at Lower Cost: The Path to Continuously Learning Health Care in America, Sept. 6, 2012

on the end goals of operational excellence and process improvement, organizations can achieve the most advantageous balance to help improve processes, increase efficiency and measure compliance.

When PMA is customized to an organization's specific needs, the short- and long-term benefits will provide myriad systemwide improvements. As well, investing in process improvements ensures a solid foundation upon which any organization can grow and prosper.

Issues at Present

Key research initiatives from the Institute of Medicine (IOM) reveal both the issues and a path forward. In a workshop series *The Healthcare Imperative: Lowering costs and Improving Outcomes*, six major categories of waste in healthcare were identified: Missed prevention opportunities (7.2%), excess administrative costs (24.8%), inflated price (13.7%), unnecessary services (27.5%), inefficient care delivery (17%), and fraud (9.8%). According to a Sept. 6, 2012, IOM report, wasteful diversion of resources resulted in \$750 billion of unnecessary hospital spending in 2009 alone.

The organization addresses these issues in its 2012 report, *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America*. It focuses on quality, outcomes, cost and equity—the same elements hospitals will need to improve upon if they are to succeed in the midst of both increasing regulatory governance and Healthcare Reform.

Though hospital executives should consider enterprise wide change, the perioperative suite is the primary focus for many organizations because it is the financial driver of most hospitals. Unfortunately for many, it also is among the departments with the most wasteful spending. In a 2011 study performed by the National Center for Biotechnology Information, researchers discovered that an operating room gap time

greater than two hours accounts for 39 percent higher costs to the hospital, and that gap times are greatest during peak hours. Given the surgery scheduling issues endemic at organizations across the country, this statistic alone presents a staggering monetary loss without taking into account other issues that exist within perioperative departments such as room turnover delays, workforce optimization and case cancellations due to inefficient alignment of supplies and equipment to daily scheduling demands

According to an Aug. 21, 2012, article on Becker's Hospital Review Web site, hospitals with an OR block utilization below 85 percent will have a difficult time making money. While hospital leaders understand the necessity of addressing surgery and staff scheduling issues, many don't know where to begin.

Opportunities Abound

Experts stress the importance of standardizing best practices as well as gathering and analyzing data to continually improve existing processes. Those who do will not only advance their overall organization, they will align their outcomes with Healthcare Reform requirements. The perioperative suite is an ideal starting point for a process management and PMA initiative because it is both dynamic and process based, which translates into ample opportunity for savings and improvement.

In addition to the quantifiable benefits are the improvements reaped simply by promoting transparency through visibility and communication across the continuum of a process. Hospitals that have implemented lean processes complimented with PMA have minimized staff frustrations, and overall, employees are more conscientious about their tasks because they better understand how their actions affect co-workers and the process as a whole.

Also, capturing information in real-time significantly improves not only the quality of data, but empowers leaders to make more informed

The following questions were created to help those responsible for processes assess their operating principles:

1. Who is our customer?
2. How does the customer measure their experience?
3. What is our current level of performance, across the set of end-to-end enterprise processes, relative to those customer success metrics?
4. What key operational factors drive our ability to consistently meet those customer success metrics?
5. How are we performing over time relative to those key operational drivers?
6. How are those key operational drivers controlled, improved, or otherwise managed?
7. Who is accountable for performance relative to those customer success metrics and related key operational drivers?
8. How do we ensure repeatability and predictability across the operation?
9. How are operations managed throughout the set of end-to-end enterprise processes?
10. How do we identify and solve problems to both improve performance and learn?

Source: BPTrends article Process Management—10 Questions that Can change Everything, Dec. 12, 2012

decisions and better understand what areas need improvement. For example, capturing the exact start and end times of surgical cases in real-time can significantly reduce the number of inaccurate minute overages that occur—a number that can amount to massive expenditures.

One of the most significant opportunities for savings is optimizing OR scheduling and staff. Throughput efficiencies provide the opportunity for better

outcomes, increase caseload, improved return on assets and enhanced operating performance, which is a more economical solution than physically expanding the department at a cost of approximately \$250,000 per OR room, according to a Dec. 22, 2011, *Hospitals & Health Networks (H&HN) Daily* article.

PMA as a Tool and Solution

Out of necessity, hospitals are transitioning from volume- to value-based organizations, which presents the ideal opportunity to create lasting change departmentally and across an organization. Because the proven benefits of a successful PMA are closely aligned with the needs of hospitals, it is the ideal solution to help overcome present issues and help organizations evolve into an efficient business entity. Not only does it monitor process integrity, it captures benchmarking information and the data necessary for more informed strategic planning and better overall decisions.

There exists a common misconception that organizations with ERP and EMR systems have less of a need for process management and a corresponding PMA system. But according to *CIO* magazine, process management is “an ideal approach for automating processes that require information from multiple enterprise applications.” Implementing a comprehensive process management solution ensures not only the integration of the aforementioned and typically disparate systems, but offers additional technological advantages as well—specifically, the ability to capture vital information in real-time.

Both ERP and EMR systems are related specifically to patient information and functional transactions, and while they serve a valuable and vital purpose, they are not traditionally implemented as the enterprise solution for process management activities. Data taken from these systems reflects information inputted by clinicians when they have the time to do so, therefore, time stamps are not always

accurate. When basing decisions regarding the surgery schedule from a system of this ilk, inherent problems exist because the information isn’t timely and there exists the possibility of human error. However, automating tasks in real-time based on real-world events such as patient milestones (e.g., estimated time of arrival in pre-op, surgery start and end, pre-op checklist, etc.) and ensuring changes are instantly visible to everyone involved in the process creates the necessary visibility and information employees need to both perform their jobs efficiently and, most importantly, to ensure patient safety.

Capturing time stamps and other critical information is possible with a hospital’s current system if used in conjunction with intuitive PMA technology. By applying the appropriate combination, hospitals can successfully customize a solution to meet their needs. The types of technology from which hospitals can choose, include:

- **RFID:** Both passive and active tags are often used with PMA solutions.
- **Bar codes:** These are commonly used on patient wrist bands for various purposes, including pre-op checklist scanning.
- **Hot panels:** This is a clinically approved PDA that provides single-touch capture and provide clinical updates for a one-source capability to log activities, capture timestamps or allow a clinician to respond quickly to an inquiry.
- **System inputs:** Information is captured from health care support systems, which in turn, updates information wherever it is viewed by those involved in the process.

These vital components work collaboratively to complement the overall process management solution. What results is that accurate information is available to every individual involved in the process via automatic notifications, alerts and alarms that appear on large screens in the perioperative suite, tablets or smart phones. This level of proactive capability empowers individuals by

Integrating culture / change management principles in leading a successful change adoption initiative

10 Common Mistakes in Leading Transformational Change

Relevance and Meaning:

Not overtly linking the change effort to business strategy

Change Governance:

Not providing clear change leadership roles

Strategic Discipline:

Not providing a strategic discipline regarding how to lead change

Inaccurate Assessment:

Misdiagnosing the scope (magnitude, technology, people, process)

Initiative alignment and Integration:

Unifying and integrating strategy and operations

Capacity:

Not creating adequate capacity for the change

Culture:

Not addressing the organizational culture as a driving factor in the change

Leadership Modeling:

Leaders unwilling to change their mindset, behaviors to model the change

Human Dynamics:

Not actively or proactively addressing the emotional equation

Engagement and Communication:

Not adequately communicating to all stakeholders

Source: Anderson, Pfeiffer 2011

providing more control over their respective environments.

While departments will experience an immediate improvement with the implementation of a PMA system, there are long-term benefits as well. Documentation and time stamping allows hospitals to collect the data necessary to pinpoint areas in need of improvement. One example is the use of data to determine the number of ER patients who leave before receiving treatment, which is an aspect of patient

satisfaction. According to the previously mentioned *H&HN* article, the lost revenue for an ER department with a volume of 50,000 patients is \$500,000 for every 1 percent of patients who leave before seeing a caregiver.

Choosing a PMA Vendor

The first and most important step in a PMA project is partnering with a trusted, knowledgeable vendor that offers an intuitive, comprehensive and flexible solution.

Gilbert Ritchie, Ph.D., Director of Anesthesia & Perfusion Services at Greenville (S.C.) Health System, was involved in choosing the organization's PMA vendor. His advice is to find one with experience in process management, industrial engineering and control processes as well as one that has clinical experience. "It's an unusual marriage of expertise, but having a company with these offerings is extremely valuable." He adds that it is important the company offer technology to automate processes, especially with regard to communication in the perioperative suite. Doing so at GHS has drastically decreased delays and in many instances, eliminated them.

The article from the previously mentioned *CIO* magazine makes the following recommendations as well:

- Verify that the vendor's process management platform is truly integrated. Some platforms have bridges to both modeling and process management. Sometimes the reporting component is just an add-on. This "bucket brigade" approach slows the iterative nature of a real process management approach to improvement.
- Don't let technology preferences taint an objective comparison of process management features and capabilities. Thinking about a process management tool based on Java versus .NET may be less important than basing one's decision on the process

management features required by business analysts for process modeling or the features required by workers to monitor and execute tasks. For example, don't fall in love with the flashiest rules engine. But don't get boxed in by existing architecture or vendor partners when selecting a platform to drive process improvement across your organization. A process management platform should be independent of legacy constraints to have the flexibility to replace source systems without affecting user-facing process automation.

- Always take a good look under the hood. Different vendors take very different approaches to implementing common process management features such as how the process model is linked to

lower-level implementations or how a user interface is constructed and integrated into the work flow. Some vendors provide better support for heavy business analyst involvement in constructing a process management application (which does not require substantial programming expertise), while others require substantial programming expertise for even simple development tasks. Some vendors offer well-defined, easy-to-use APIs to allow for custom integration to accomplish more unique requirements. Drilling down into the details will help decision-makers understand exactly how a particular vendor's product will fit with the skills and capabilities of the organization and best meet the company's specific needs.

About the Authors

Timothy Callahan

With more than 30 years' experience in the healthcare industry, Tim Callahan has developed an extensive breadth of knowledge encompassing acute care and alternate site markets, perioperative and supply chain service lines and the market complexities faced by healthcare stakeholders. He has maintained various executive roles at health care companies running the gamut from a Fortune 500 company to small, agile product-based companies requiring highly adaptable and responsive leadership.

Throughout his tenure in the healthcare industry, he has excelled at business development, marketing, product branding and operations in both the corporate milieu and as an entrepreneur. Included in his successful independent ventures are the development of a custom procedure packaging company, a pediatric extended facility for medically dependent children, a critical care service company for homecare and the founding of a consulting organization that branded and launched multiple service and technologies within the healthcare market.

Mr. Callahan earned a Bachelor of Science Degree in Business Administration from Marquette University and has completed advanced executive education programs in finance and leadership from the Darden School of Business, University of Virginia.

Nick Gaich

Nick is the founder and CEO of Nick Gaich and Associates, a firm dedicated to providing executive coaching, leadership development, strategic planning, and operational performance. Nick has more than 35 years of experience. His range of expertise is concentrated in areas such as executive coaching, organizational development, supply chain management, customer service, service line economics, and clinical research infrastructure and operations.

He also serves as a Senior Adviser to Venture-Med an Angel Investment Firm dedicated to funding and mentoring new healthcare start ups with a focus on medical devices, healthcare IT, and mobile health platforms that will enhance patient safety and outcomes. Nick Gaich retired in 2012 as Assistant Dean of Clinical and Translational Research Operations, Stanford Center for Clinical and Translational Research and Education at Stanford University School of Medicine. In addition to his executive responsibilities for the Stanford Center for Clinical and Translational Education and Research Nick also served as an advisory board member for the Oregon Clinical and Translational Research Institute (OHSU) and Yale Center for Clinical Investigation (Yale University) programs.