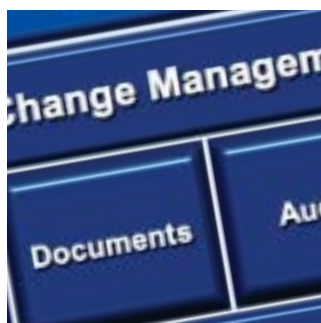


Integrated Compliance Management

A Sound, Cost-Effective Strategy for Exception, Change, and Risk Management

Chris Parsons, Eric Mitchell,* and Karen Weidenaar



PILGRIM SOFTWARE, INC.

Integrated IT solutions can be important tools for improving CGMP compliance and reducing the risk of approval delays and product recalls. Manufacturing exceptions and variability often can be managed more effectively through integrated, enterprise-wide systems that include corrective action and preventive action, audit management, document management, and employee training capabilities.

Chris Parsons is the director of marketing and **Eric Mitchell** is the marketing communications manager, at Pilgrim Software, tel. 813.915.1663, ext. 286, fax 813.915.1948, mitchelle@pilgrimsoftware.com.

Karen Weidenaar is vice-president of marketing at Y2G Associates.

*To whom all correspondence should be addressed.

Quality-related recalls in the pharmaceutical industry have made headlines in recent years. In drug manufacturing, problems related to product quality have very serious consequences. In addition to generating consumer safety concerns, failures in quality can result in product delays, fines, recalls, and even plant shutdowns. Pressures surrounding regulatory compliance have grown significantly. Increasing FDA oversight and the need to ensure compliance with current good manufacturing practices (CGMPs) is forcing companies to take a proactive and automated approach to their compliance and change management strategies.

FDA maintains that costs of implementing compliance and the regulatory systems will be offset by reductions in the time required to get new drugs approved and launched to market. Many instances of noncompliance have been a result of a lack of knowledge about the intense impact of regulations on information technology (IT) systems and operational processes. Pharmaceutical organizations generally have an accurate understanding of regulatory requirements such as 21 CFR Part 11 from a business systems perspective. Achieving full compliance, however, has been blocked by a lack of IT solutions and the immaturity of IT operational processes, including configuration management and change management. Fewer than 2% of Global 2000 organizations have mature IT processes in which the complete configuration of the IT environment and how each component interacts with other components are mapped and constantly updated to reflect changes (1).

Because of current paper-based and disconnected electronic quality systems used in most enterprises, information flow is inevitably delayed, out of sync, or fails altogether. Fragmented IT architectures, disconnected applications across functional departments, and silos of information have dramatically increased the cost and effort necessary to achieve compliance.

An IT road map for compliance

Managing regulatory compliance as a business issue and treating regulatory requirements as an opportunity to build quality and compliance into business processes not only reduce the risk of noncompliance but also provide companies with a sound, cost-effective strategy for increased productivity, risk mitigation, and ultimately, accelerated innovation and product releases.

The solution to many problems related to compliance and quality lies in the implementation of an integrated, enterprise-wide compliance management platform that includes overarching corrective action and preventive action (CAPA), audit management, document management, and employee training capabilities. This unified approach ensures product and data integrity and provides the company with the ability to quickly identify potential problems and take fast, decisive action to reduce liability and the total cost of quality. The ideal system would integrate easily with existing applications to eliminate the risk of missing, inaccurate, or inaccessible information caused by managing data in disconnected systems. The compliance platform would provide an enterprise-wide view of deviations and change across the business, including research and development, clinical trials, regulatory compliance, and manufacturing. Integrated compliance and change management form the core of this platform by connecting all operations and enabling proactive and reactive responses to compliance and quality concerns. This allows for a systematic, top-down approach to problem identification and business process improvement.

The highest priority should be given to applications that address the root causes of unplanned variability and exceptions. Problems related to quality and compliance that are detected after they occur result in significant costs and effects on the supply chain. The best way to uncover problems as close to the source as possible or even before they occur is to endorse a focused culture of industry best practices with controlled compliance that drives operational excellence. This approach can be driven through a CAPA system that maintains multiple touch points across the organization.

Corrective action and preventive action

CAPA is central to integrated compliance management. Thirty to fifty percent of FDA 483 citations are related to CAPAs (2). CAPAs can come from anywhere in an organization. Traditionally, home-grown systems or stand-alone applications addressed specific areas of noncompliance and did not integrate with other functions and business processes. An enterprise platform incorporating CAPA provides end-to-end exception and change management capabilities to help companies capture problem data from across the business, manage the entire corrective process, implement multiple changes simultaneously, and ensure that the problem has been resolved effectively.

Handling customer complaints, for example, is currently a challenging issue for pharmaceutical manufacturers. Complaints can enter an organization through several departments or call centers and must be managed through a systematic, enterprise-wide process. A complaint must be registered in the CAPA system by the department that received it. The CAPA system then alerts affected departments of the exception, traces the problem to its root cause, and implements both a corrective and a preventive action. This must be a closed-loop process that includes a follow-up audit to ensure that the action taken has been effective.

Another example is an exception that occurs in product development. An enterprise-wide system incorporating CAPAs could uncover a deficiency in training that caused this specific



Figure 1: An integrated IT solution can increase management control.

exception and could track the problem back to the training system for investigation, root cause analysis, and preventive action. If insufficient training is the cause, the training system could automatically schedule additional training for the employee. Again, follow-up is critical and employee competency reviews should be a regular part of the training process.

Finally, reducing unplanned variability is an important outcome of improvements made through an enterprise-level CAPA program. Unplanned variability may lead to rework levels as high as 50%, significantly lowering the utilization capacity of the organization (3). Manufacturers that cannot effectively control unplanned variability and waste will have a very difficult time moving to a demand-driven or replenishment-driven manufacturing strategy. Reducing variability and waste are also critical if manufacturers wish to reduce their time-to-launch for new products and reduce the cost of new product development.

Integrated electronic document management systems (EDMS)

FDA regulations have forced pharmaceutical manufacturers to take note of their document processes. Currently, many companies either lack document management systems or have several disconnected systems in place, which often means that unapproved, out-of-date, out-of-sync, or inaccurate information remains available. These disparate document systems manage everything from legal and regulatory compliance documents to manufacturing recipes to human resource documentation. Few of these have been integrated, and as a result companies have failed to ensure standards and compliance across distributed global sites. At the same time, manufacturers strive for paperless operations and improved content and knowledge management and are looking to EDMS to help with an ever-widening range of problems.

Integrated EDMS provide access to the right information at the right time, enabling companies to collaboratively create, man-

age, deliver, and archive key documents, including standard operating procedures (SOPs), policies, work instructions, and best practices in one central repository. For example, when employees require training in SOPs, EDMS can capture management sign-off on the training and provide a record to certify that the training was carried out. When used to document manufacturing processes, the best systems will even check the severity of an exception and generate the appropriate adverse-event report for submission to FDA. Implementing an enterprise-wide document management system improves content and knowledge management and helps companies comply with FDA regulations, including 21 *CFR* Part 11 requirements for electronic records and electronic signatures.

Audit management

Audits are a critical part of an organization's quality system and FDA requires regularly scheduled audits for compliance. Pharmaceutical companies should audit their suppliers regularly and maintain an approved supplier list (ASL). The reasoning is sound: Poor quality ingredients lead to a poor, and potentially unsafe, final product. Audits bring in valuable data to show executives exactly how their people, processes, equipment, and business partners perform. They are the best way to identify what is going on in the company and to determine whether procedures are being followed. Good corporate governance is maintained through good auditing processes. The introduction of the Sarbanes-Oxley Act has increased the emphasis on corporate audits, and IT executives must demonstrate through audits that controls are in place to ensure the accuracy of corporate data.

An effective audit management system not only will track and manage the actual audit but also will pass audit observations to the CAPA system for root-cause analysis and corrective and preventive action. A follow-up audit should be automatically scheduled to ensure that any problems have been rectified. Integration with EDMS enables company managers to access relevant documents such as SOPs that must be referenced during an audit.

When companies turn to contract manufacturing, audits become even more critical. As more drug research and manufacturing is outsourced to contractors, pharmaceutical companies must conduct regular audits to ensure that their suppliers' processes are up to standard. Exceptions uncovered in an audit have a serious impact on a supplier's ratings, which can lead to the supplier's removal from ASLs. On the contrary, if a supplier has proven to be an on-time, high-quality provider, then costly inspections can be reduced, thereby saving time and labor costs and minimizing unplanned variability.

Training

Regulatory compliance has an effect on organizational structure, training, skills, and competencies in an organization. In addition to ad hoc applications and departments functioning as silos, inconsistent employee behaviors and practices also lead to variability and inconsistency that cause quality and regulatory compliance problems. All individuals in the organization, not just the quality and regulatory affairs departments, must be

the eyes and ears of quality and compliance. Ensuring that employees are certified to perform their jobs improves the productivity of the work force and reduces business risks. An integrated training program addresses all aspects of employee training including certification, training courses, training materials, and documentation. In addition, refresher training is critical as processes change or if employee performance declines.

By integrating an enterprise-wide application that includes training and change management into business processes, a company can transform organizational behavior to achieve sustainable change and real improvement. The training system must be tightly integrated into the company's CAPA, document management, and audit management systems to streamline procedures and ensure FDA compliance.

A comprehensive solution

Implementing tightly integrated CAPA, EDMS, audit, and training systems not only reduces IT implementation costs and helps companies ensure compliance, but it also provides executives with another powerful benefit—centralized data. An integrated solution provides centralized access to data that can be reported, queried, and analyzed. These data provide management with key trends that can help companies benchmark against key performance indicators and identify emerging business risks or opportunities.

Conclusion

The collaboration that is required to bring new products to market faster, to avoid supplier shortfalls, or to meet client deadlines demands an integrated platform to plan for and manage all exceptions and variability. The CAPA system must be able to access data from across the organization to identify a root cause and implement corrective action. EDMS provide a central repository for current, accurate information. Audit management ensures that the organization is performing at the highest levels, and training management keeps employees qualified, knowledgeable, and in compliance with FDA regulations.

Enterprise compliance management functionality must address the event and analytics required to support quality and compliance decisions across the full manufacturing process. Top pharmaceutical manufacturers are building integrated compliance management into business process performance. As a result, these manufacturers are realizing the benefits of a fully integrated platform for top-down industry and regulatory compliance, including minimized business risks, optimized costs, and reduced time to launch. This allows pharmaceutical companies to provide the highest quality, safest products at the lowest cost to meet customer demand.

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