OPENTEXT™

OpenText in Life Sciences: Regulated Information Management

Maintaining 21 CFR Part 11 best practices across the enterprise

The biggest challenges of Life Sciences companies today are maintaining a robust product pipeline and reducing time-to-market while complying with an increasing and evolving multitude of federal and international regulations. In this paper, we discuss the particular requirements of rule 21 CFR Part 11 and describe how OpenText Regulated Information Management, built on OpenText Content Suite - the leading collaborative knowledge management software from OpenText, enables Life Sciences companies to comply with 21 CFR Part 11

Introduction

All companies that develop new products are interested in reducing the time that it takes to get their products to market. For Life Sciences companies, the challenge of reducing time-to-market for new products is even greater than for other industries due to the strict regulatory environment in which you must operate. Functions across the Life Sciences value chain, such as Regulatory Affairs, Quality, R&D, Commercial Operations & Marketing, Legal, Manufacturing, and Distribution, are all under strict directives to maintain documents and records of high integrity and careful compliance to GxP, ISO, USP and other standards and regulations (Fig. 1). Often, these records are managed in disparate information silos, slowing the flow of information among stakeholders and impeding time to market. In fact, poor documentation procedures are the most cited reason for receiving a 483 Warning Letter from the FDA. Thus, a truly comprehensive Regulated Information Management solution consolidates and maintains your business-critical documents in a manner which complies with your corporate and international regulatory guidelines and makes those documents available to the right internal and external stakeholders at the right time.

A SINGLE SOURCE OF TRUTH FOR YOUR ORGANIZATION

The OpenText Regulated Information Management solution serves as the document and records management platform for all Life Science regulated and non-regulated business applications, including:

- *Clinical Trial Management System (CTMS)*
- *Digital Asset Management (DAM)*
- *Electronic Common Technical Document (eCTD)*
- *Electronic Laboratory Notebook (ELN)*
- *Electronic Trial Master File (eTMF)*
- *Laboratory Information Management System (LIMS)*
- *Learning Management System (LMS)*
- *Master Device Records (MDR)*
- *Plant Asset Management*
- *Quality Management System (QMS)*
- *Records Management (RM)*
- *Vendor Invoice Management (VIM)*

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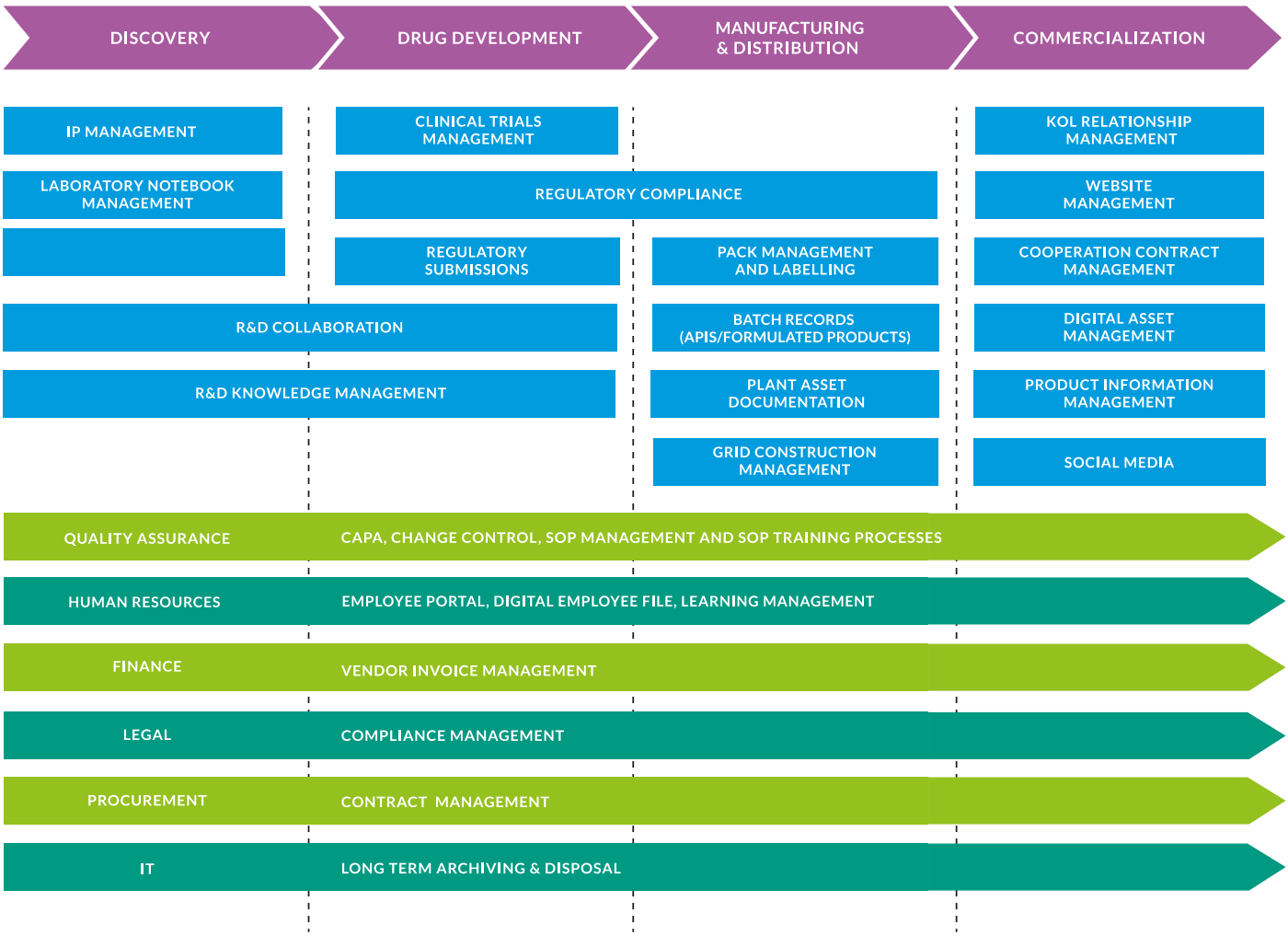

FIGURE 1: REGULATED INFORMATION MANAGEMENT ACROSS THE LIFE SCIENCE VALUE CHAIN

Historically, Life Sciences companies have managed and tracked documents in paper format. The methods and practices for ensuring that the paper records included in submissions or maintained for possible inspection were authentic and unaltered were well established and understood. Substituting electronic documents and signatures for paper required new procedures to insure authenticity, integrity and confidentiality.

Implementation of the US Government Paperwork Elimination Act of 2000 specifically states that electronic records and their related electronic signatures are not to be denied legal effect, validity, or enforceability merely because they are in electronic form, and encourages Federal government use of a range of electronic signature alternatives.

The FDA requirements for certifying that electronic records and electronic signatures are trustworthy, reliable, and essentially equivalent to paper records and handwritten signatures are described in 21 CFR Part 11.

Electronic Records and Signatures under 21 CFR Part 11

- Electronic Records—defined as "any combination of text, graphics, data, audio, pictorial, or other information in digital form that is created, modified, maintained, archived, retrieved, or distributed by a computer system." (The rules apply to any records covered by FDA regulations that exist in an electronic form, including records that are required to be maintained whether they are submitted to the FDA or not).
- Electronic Signatures—defined as "a computer data compilation of any symbol or series of symbols executed, adopted, or authorized by an individual to be the legally binding equivalent of the individual's handwritten signature."

Complying with 21 CFR Part 11

The Regulated Information Management solution enables Life Sciences companies to address not only their need for software

that can be used in a Part 11-compliant way, but also to manage the SOPs that describe the procedures and best practices that must be followed to ensure compliance.

The requirements of 21 CFR Part 11 for Life Sciences companies can be summarized as follows:

- Ensure the authenticity, integrity, and confidentiality of electronic records
- Generate accurate and complete copies of records for the FDA to inspect and review
- Ensure the security and easy retrieval of electronic records
- Ensure that only authorized individuals can access, manipulate, and electronically sign records
- Maintain a log of all changes made to electronic records throughout their lifecycle
- Record and store electronic signatures with the electronic records to which they have been applied
- Ensure that record processing steps are performed in the proper order
- Ensure that persons who develop maintain, or use the electronic record/electronic signing system are properly trained
- Ensure that individuals are accountable for actions initiated under their electronic signatures
- Maintain control over system documentation
- Establish and maintain SOPs regarding all of the above and other requirements

The OpenText Solution

OpenText Regulated Information Management offering helps Life Sciences companies manage electronic records and signatures across the value chain in compliance with 21 CFR Part 11 in the following ways:

- The capabilities of its OpenText Content Suite, OpenText Electronic Signatures, Controlled Viewing and Printing, and other software products, enable compliance with specific FDA requirements.
- Professional Services help Life Sciences companies develop the policies, procedures, and best practices to ensure that OpenText software products are used in a 21 CFR Part 11-compliant manner.

OpenText Content Suite

Serving as the foundation of Regulated Information Management, OpenText Content Suite (formerly known as LiveLink) is a highly scalable, collaborative knowledge management platform that allows organizations to store and manage a wide range of digital objects—from simple and compound documents, data records, molecular models, image and video files, to search queries and URLs—and provides controlled user access to these objects. All of the electronic records maintained by Life Sciences companies can be stored and managed in Content Suite.

Content Lifecycle Management: Content Suite provides the ability to perform lifecycle management of all electronic content including Microsoft® Office files, XML files, emails, PDFs, CADs, multimedia, UTF-8 content, etc. This content is stored in the ECM repository, tracked, retained for its lifecycle and disposed of once the end of life is reached for that content. The electronic content can have metadata (data elements) associated with the content providing information about the content. For instance, is the content a Microsoft Word document or an email or an HR record, or an official record of the corporation, or an SOP document? Each of these items has a different lifespan and can be involved in very different business processes during their lifecycles. The access permissions on each of these items vary significantly as well. The ability to classify electronic content, control its access, manage it with defined processes (workflows), retain it for the appropriate length of time and then dispose of it in a legally defensible manner is a cornerstone of the content lifecycle management (CLM) solution. But CLM is not just about controlling and managing business content and the repositories where it resides. It is about understanding the relationship between people, processes and content in a corporation. It is also about documenting how content flows within and across departments, what systems it touches and what processes with which it is associated.

Content can be created from a variety of sources. All forms of data content can be managed as users typically work via their desktops in user-friendly applications such as Microsoft Office or Outlook or IBM® Notes®. By logging into the Content Suite through their preferred browser (Internet Explorer, Firefox, Safari), users can download, upload and edit content within the repository, with all content controlled by access permissions.

Search

As content is received by Content Suite, it is indexed, associated with any default metadata (categories) and stored in a repository location as specified by the user. Access permissions are also set according to the administrator-configured parameters and the location chosen. It is then exposed to a rich search engine that can perform searches against both the content data and the contents of the metadata using simple and complex full-text and Boolean search strings. The domain of the search can be limited to just a portion of the repository or it can span the entire repository. Through the use of federated searches, the search can be expanded to include file systems and other repositories. A search query can return exact matches or similar matches including “sounds like” search criteria. The results of both the search and the search template can be stored, as desired by the user. Additional searches refining the search template are also available. As with all content stored in the repository, access permissions control what content is returned as a result of a search. If a user does not have permission to see that specific content exists, it will not be shown in the search results. Content is also exposed to a powerful business process engine (workflows) that allow organizations to route documents through the various stages in the documents lifecycle. Approval, review, edits and comments are all possible steps along the workflow process.

Audit & Version Control

As changes occur to content (new versions, edits, deletions) all actions are logged in an audit trail so accountability of all content is maintained across the repository. The system administrator can review this audit log as desired.

When an additional version of the same content is stored in the repository, a newer version is added and becomes the default version when the content is searched, opened for viewing or opened for editing. However, previous versions, back to a configured maximum number of versions, are still available for comparisons or as a backup to be reverted if necessary. While content is stored in folders in the repository, users can create shortcuts from their personal repository workspaces to their favorite content or folders for faster access.

Notifications

When content is added to the ECM repository, notifications can be sent out automatically as desired by users. For instance, a user can choose to be notified by email whenever a new item or version is added to a specific folder. They can choose to receive such a notification immediately, hourly or daily. As workflows process corporate data, users are always notified via an assignment list, and can also be notified via email, when a workflow step requires their participation. This notification can be a review, approval, electronic signature or just informing them that a specific action is needed. A deadline can be imposed and when the user exceeds that deadline, escalations can occur as well. The administrator can review the system-wide list of assignments and tasks and outstanding items are clearly flagged for review. The administrator can re-assign any task if, for instance, a user is out on holiday or otherwise unavailable.

Archiving

Content can be added to the repository through local and remote user action, bulk loading utilities or connectors that draw content from other repositories. Content can be kept on file storage or moved to the OpenText Archive Server which performs single-instance archiving, compression and encryption as desired. Storage via the Archive Server can be on disk or worm or optical media or magnetic tape. Content stored within the Archive Server is managed and accessed like all other repository content.

Software Validation

The Regulated Information Management solution has been extensively validated using GAMP 4 and GAMP 5 principles for quality system regulations (QSR) (21 CFR Part 820) and electronic records rules (21 CFR Part 11) at many firms by OpenText, partners, system integrators, and/or in-house staff. Because the software is primarily configured rather than customized with code, upgrades and software re-validation are less resource-intensive.

Extended Third Party Solutions

While the Regulated Information Management solution serves as the foundational documentation infrastructure for regulated industries, such as Life Sciences, third-party point solutions can help extend the value of your technology investment across the organization. In areas such as Quality Management, Clinical Trial Management, Regulatory Affairs, and Manufacturing and Distribution, OpenText has partnered with leading companies, such as US Data Management, Global Cents, Quintiles, and KineMatik, to offer Content Suite-based solutions employing best practices and complying with standards such as GxP and GAMP. Additionally, with over 100 RESTful APIs, Content Suite allows smooth integration with your existing applications and has been integrated with dozens of industry-leading applications including Medidata® CTMS, TrackWise® QMS and Liquent InSight® eSubmission.

Summary

Coordinating and streamlining the efforts of research and development, production, distribution and marketing, while achieving regulatory compliance, are challenges that face Life Sciences organizations today. The opportunity to cut costs and reduce dependency on paper processes is of enormous benefit. 21 CFR Part 11 is a key regulation to which Life Sciences companies must conform if they want to take advantage of electronic records and electronic signatures. The Regulated Information Management solution offers Life Sciences companies the software infrastructure to remain compliant, reduce costs of records management, and enable innovation through collaboration.