

Introduction

Mention document management to anyone involved in engineering, construction or the process plant industry and they will think in terms of an approvals cycle. Before anything gets built, extended or fixed, consultations take place, designs are produced, and the drawings and schedules are passed around a workflow of commenters and approvers who are suppliers to the project. They comment and give their professional judgment as to whether the design is safe, fit-for-purpose, buildable and maintainable. Given the consequences for the project of errors or lapses in this approvals process, comments and sign-offs must be very carefully tracked, with a full audit trail for authentication and traceability.

Such document approval paths are similar to those found in other industries such as aerospace, pharmaceutical and transportation, or even in government and healthcare, although they may not use the same terminologies. When it comes to specifying a document management system to control these approvals cycles, construction and process practitioners will ask tricky questions such as, “Does it handle transmittals?” referring to the transmittal note that in the past would accompany a bundle of paper drawings and documents being sent out by courier for approval – and indeed, “Can we group drawings and supporting documents as a bundle and pass them around the approvals loop together?” This might be followed by “Can we track comments by function?” to ensure traceability between approvers, and between versions, and “Can we maintain a distribution matrix of who sees which drawing renditions” and “Can we re-flow updated versions around the approvals loop automatically?”

Over the years, document management systems have been put in place to handle these processes, either as industry-dedicated systems or as added features to the larger document management and ECM (Enterprise Content Management) suites. In parallel, particularly over the last five years, there has been a major change in the generic ECM scene with the arrival of SharePoint. Offering an appealing, browser-based user interface, and the ability for users to readily set up mini-websites where project teams can exchange specifications, project calendars, meeting minutes, etc., SharePoint has made rapid inroads into the majority of businesses, often initially in an uncontrolled or un-governed way. This has been particularly true in construction and process, where dispersed design teams have utilised the free functionality offered with Microsoft servers to implement SharePoint collaboration mechanisms under-the-radar of corporate IT. With the arrival of SharePoint 2010, many companies have consolidated this activity, declaring SharePoint to be their standard for collaboration, and as a natural extension, their preferred repository for document management – often to the dismay of project managers, records managers and compliance officers, who are tasked with managing critical processes, risks, regulatory compliance and contract claims.

As far as those tricky questions from construction and process go...no, SharePoint cannot handle transmittals. Nor any of the other questions so important to formal document approval processes. At least, not as it comes ‘out-of-the-box’. However, as we have found in many other vertical applications of SharePoint, the openness of the platform has allowed a number of third-party developers to utilise their specific domain expertise and add additional features within the product, and in some cases, extend outside of the product to open up the collaboration capabilities to a wider audience.

General Benefits of Approvals Systems

So let us look in more depth at the demanding challenges of document approvals within engineering, construction and process. It is a collaborative process between both internal and external participants involving packages of documents that must remain tightly related throughout the publication cycle. The input from each participant needs to be of a highly compliant nature, and the sign-offs need to be timely, authoritative and auditable, as the consequences of misunderstandings are critical in terms of the financial penalties, and risks to health and safety.

An effective approvals system needs to provide and enforce a rigorous business process that extends over the entire approvals community. The prime benefits are: to ensure a sound and buildable design; to reduce the risk of non-compliance with industry regulations during the project planning, design and build processes; to reduce construction delays due to space conflicts and service incompatibilities; and to provide an as-built maintenance database for ongoing operations. Alongside the enforcement of pre-determined workflows, the system will also provide monitoring and expediting of bottlenecks and delays, increasing transparency, and supporting project milestones.

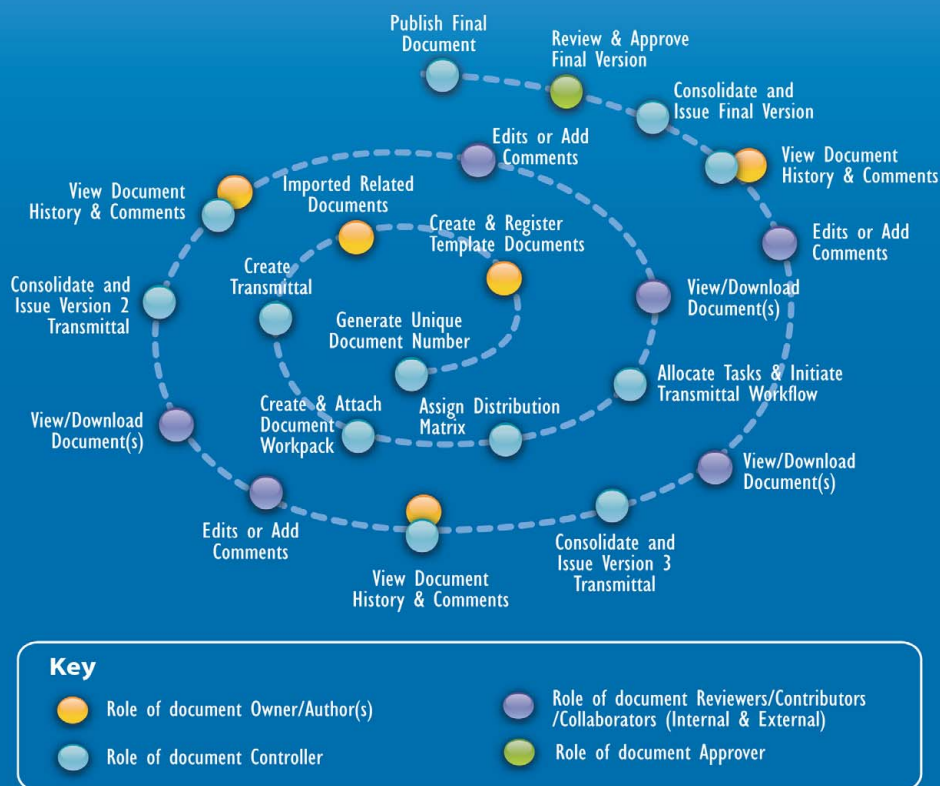
A good approvals system will also enhance two-way communications between design teams, engineers and third-party contractors. It will accurately capture collaborative feedback at both formal and informal levels during the document review and approval cycle, whilst maintaining contractual relationships, enforcing security and assuring provenance.

In managing drawings and specifications, the system will enforce relationships between related documents, maintaining control across multiple versions and renditions of the same document, and within and between the bundles circulating in the approvals loop. As comments are incorporated, they will be tracked into subsequent drawing revisions.

During and after the project, the approvals and document management system will provide easy searching and retrieval of components and assets, consolidating as-built information, and feeding into the ongoing facilities management and operations processes.

Ease of use is an important aspect of any approvals system. Busy contractors can be somewhat impatient with systems that are difficult to learn, and they may be remote from the core team, so unable or unwilling to give up time for training.

Transmittal Review and Approvals Cycle



SharePoint Deployment

For project-site collaboration and document management within the business, SharePoint is relatively easy to use at a basic level. As you might expect from Microsoft, it conforms to the normal windows and browser conventions. IT departments have now accepted it as part of their standard infrastructure. Over the last two releases, aspects such as security, version control and records management have been much improved, although governance is still something that has to be imposed on SharePoint, rather than being inherent in the system. Some powerful tools for workflow and process management have been introduced, but they are difficult to use and need coding work to adapt to specific needs.

Extending SharePoint collaboration outside the firewall can introduce additional license costs, and the security system is somewhat limited. It is folder-based and dependent on the Active Directory structure, which can cause issues in multi-company projects.

A cloud version of SharePoint is available which can help accessibility outside of the firewall, although it is quite difficult to run selected projects in the cloud whilst linking back to the on-premise SharePoint servers.

Drawbacks of Native SharePoint for Approvals

Native SharePoint in an 'out-of-the-box' configuration does not adequately address the following core document review and approvals functionality:

- Auto-numbering of documents
- Document register
- Handling of relationships between documents
- Management of versions and renditions within document work-packs
- Associating tasks to document work-packs
- Document distribution matrices
- Transmittal organisation and distribution
- Multi-person commenting within design documents and drawings
- Auditable distribution, review and approval for regulatory compliance
- Linking equipment tags to design specifications and technical drawings

Third-Party Products

Microsoft is happy to promote the concept of SharePoint as a development platform where both in-house design teams and third-party developers can readily build-out the feature set for vertical requirements. The AIIM recommendation would always be to use ready-assembled third-party products for these kinds of application. Assuming the third-party supplier has a track record in your industry, they are likely to have determined an appropriate feature set that can be adopted and implemented far more quickly and with less risk than an extensive in-house customization. When a new version of SharePoint is released, it is incumbent on the third-party vendor to re-report their product rather than triggering an in-house reapplication of customized code. It is also likely that a third-party vendor will offer ready-built connectors to other industry specific applications and databases.

In the case of a document approvals system for engineering, construction and process, continuing to develop the functionality once a project is underway is seldom an option. Similarly, setting up the parameters for a specific project, and linking in all the participating organisations, contractors and suppliers, needs to be transparent and straightforward, and should not create any hard-wired configurations that will not easily transfer to other projects.

A further benefit of using knowledgeable third-party suppliers is the reassurance of professional services support to help set governance and configuration of the basic SharePoint installation. They are likely to provide application-specific training to administrators and to provide ongoing support during the time-critical stages of the approvals process itself.

Conclusion

In many organisations, SharePoint has become the de-facto content management system, frequently causing conflict with those areas of the business that have specific process requirements. Utilising a third-party integrated product with specialist credentials in the vertical domain can provide a win-win result, and is generally more successful than heavily customising SharePoint in order to meet these specific needs.

Managing document approvals within construction projects is a demanding and mission-critical process. The combination of SharePoint and a third-party integration based on sound domain expertise will provide conformance with enterprise IT standards whilst supporting and enforcing the approvals process in an efficient, compliant and auditable way.



About Aptus

Aptus Solutions is a document management software and service specialist. Since 1997 it has delivered document and data management solutions to help organisations effectively and efficiently manage their information. It provides enhanced information management solutions powered by best of breed software vendors, including Microsoft, EMC², SAP and IBM.

When Aptus Solutions was launched, document management software was only used by the largest of organisations and the team worked as consultants to deliver each company's desired outcome from it. Aptus Solutions has drawn on this experience and developed a suite of leading software products, shortening the consultancy engagement and placing the fruits of its expertise in the hands of any enterprise.

yourDCC is Aptus Solutions software-based document control centre for Microsoft SharePoint.

yourDCC enhances SharePoint by adding automatic numbering, transmittal management, document commenting, document relations, and engineering workpacks and renditions – extending the functionality of SharePoint into that of a fully featured engineering document management and control application.

From a single SharePoint management interface, **yourDCC** provides a complete audit trail. Processes that were formerly labour and time intensive are streamlined to be completed at the click of a mouse, whilst enabling the user to still maintain complete control. It unlocks the benefits of information management for an organisation by overcoming difficult to import legacy document file formats, platform requirement, security, and cost issues.

yourDCC is highly flexible, and can be delivered over a network or via the cloud, allowing for both internal and external access without sacrificing system security. Aptus Solutions can also offer the service to non-SharePoint organisations by adding on server-based or cloud-based SharePoint access.

To find out how **yourDCC** puts document control back in your hands, contact Aptus Solutions on +44(0) 20 7960 4800 or email sales@aptus.co.uk

About the White Paper

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AIIM has been an advocate and supporter of information professionals for nearly 70 years. The association mission is to ensure that information professionals understand the current and future challenges of managing information assets in an era of social, mobile, cloud and big data. Founded in 1943, AIIM builds on a strong heritage of research and member service. Today, AIIM is a global, non-profit organization that provides independent research, education and certification programs to information professionals. AIIM represents the entire information management community, with programs and content for practitioners, technology suppliers, integrators and consultants.

About the Author

Doug Miles is Director of the AIIM Market Intelligence Division. An early pioneer of document management systems, Doug has been involved in their evolution from technical solution to enterprise infrastructure platform. Doug has produced a series of AIIM survey reports and white papers on user issues and drivers for ECM, Records Management, Capture, SharePoint and Enterprise 2.0.



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