1 Purpose of this Standard

The purpose of this standard is to establish the best practices and principles on which to evaluate the functional requirements of software that will be performing documentation and data control and management.

2 Risks of non-compliance

Some of the risks of not having, or not complying with these standards are:

- Incorrectly purchased software
- Incorrectly configured software
- Excessive capital spent on trying to force incorrect software to perform to established business and document management processes
- Platform administrator or user frustration
- Loss of adequate security of files
- Duplicated efforts between manual and software resources
- Poor integration between software platforms and degradation of quality of data
- Noncompliance with regulatory record uploading

3 Software Evaluation

There are many different options for software platforms and add-ons on the market that can assist in the automation, quality, and efficiency in Document Management. However, there are different categories and very different requirements for different companies.

The first consideration is to understand what the organization needs from an industry perspective:

3.1 General categories of organizations

The following is the minimum considerations for reviewing software functionality for different organizations.

Owner / Operator organizations

Owner organizations need to consider functional requirements for the following:

- Managing all documentation and data from a site perspective
- Capabilities of identifying projects for each revision of site documentation or data
- Managing modifiable files, 3D model files, and x-references during a project
- Housing modifiable files when not being modified on a project
- Concurrent engineering or work management
- Management of Requests for Information during construction
- Management of Change activities
- Housing data files for programming
- Minor workload for managing vendor documentation submissions
- Portal requirements for receiving and transmitting documentation and data to and from outside stakeholders

- Accessibility for site personnel
- Integration with independent software platforms for Procurement, Asset Management and Maintenance, and Cost Control
- Integration with Records Management

Engineering contractors

Engineering contractors, commonly called EPCs or EPCMs, need to consider:

- Managing all documentation and data by project perspective
- Integration of document deliverables with earned values, and project budgets
- Managing modifiable files, 3D model files, and x-references during a project
- Major workload for managing vendor documentation submissions
- Major requirements for expediting purchased packages and documentation
- Compilation of facility data books
- Integrated software containing embedded components for Enterprise Management, Project Management, Procurement, and Cost Control
- Timely change management support

Land and Survey organizations

Land and Survey contractors need to consider the following:

- Managing all documentation and data by project perspective
- Integration of document deliverables with earned values, and project budgets
- Managing modifiable files, shape files, and maps during a project
- Housing data files
- Management of records and field notes
- Integrated software containing embedded components for Project Management and Cost Control

Construction contractors

Construction contractors have requirements for the following:

- Managing all documentation from a job perspective, by work package
- Incoming documentation deliverables and distribution to crews
- Management of Requests for Information
- Transmission of construction documentation, markup packages, field notes
- Integration with labour, equipment, and materials software
- Timely change management support
- Contracts management
- QC record production, transmittal, and storage

Manufacturers, Vendors and Suppliers

All other service and materials providers should consider functionality for:

- Managing all documentation and data by order / work order perspective
- Integration of document deliverables with earned values, and project budgets
- Managing modifiable files and x-references during a project
- Major workload for managing sub-vendor documentation submissions
- Major requirements for expediting purchased components and documentation
- Compilation of manufacturer's record books
- Integrated software containing embedded components for Project Management, Procurement, Inventory Management, and Cost Control
- Typical drawings and documents for shop floor / production

Additional general considerations include:

- What the data mapping for the organization is
- The reporting requirements; expediting, transmittals, squad check forms, indexes, modifiable file tracking, etc.
- The complexity of the taxonomy of the documentation and data; drop down lists, text fields, auto sequencing, assigning numbers to files not yet uploaded
- Ability to store and utilize templates for drawing and documents
- Ability to manage different categories of documentation; corporate, vendor, drawings, documents, facility documents
- Document Control functions:
    - Bulk upload
    - Bulk download
    - Bulk print
    - Multiple workflow capabilities
    - Advanced metadata and explorer type searching
    - Customizable metadata fields
    - Sign in / out or check in / out capability
    - Linking to modifiable x-references
    - Ability to create custom folder / file views for each main group within an organization without affecting the controlled structure
    - Secure transfer portal / landing area for compilation before transmission, and for quality checking files before integration into the controlled area
    - Fine grained security for access and manipulation of documentation categories and formats, by group

NOTES

- Software performance is only as good as the quality of the data contained within. Processes and procedures must be established before appropriate software can be selected and configured.
- Just because a system will accept a file extension (such as .dwg) does not mean that it understands how to manage the file.
- A staging (quarantine) area must always be considered, as this is one of the most important tools in quality checking information before release to the general population of an organization.
- Metadata must be entered based on a cross-functional requirements session; operators, project managers, and engineers will all have different metadata requirements.
- Some software will not allow integration with another software, therefore your IT / IS team must be involved for back end compatibility.
- Ensure that the software review includes scalability as the organization grows.
- Cheap software may require expensive customization, making the total cost of the software much more expensive than a better quality software.
- Investigate the history of the software and get references.
- In the engineering sector, often the most important field of metadata is the tag / identification number of equipment and instruments. Ensure this is included in your metadata.
- Ensure you have investigated regulatory and legal compliancy, and embed those requirements into the system.
- Investigate the adaptability of the software to existing workflows within the organization.
- Understand the provisions for support, updating, and warranties.
- Evaluate the burden to internal resources, i.e. a server based system will require hardware (possibly) and regular IT involvement. However, a cloud-based option will be relatively stand-alone.
- Ensure that the software is compatible with the latest Operating System and backward compatible with at least one, if not two, previous versions of the Operating System.