BUSINESS SCENARIO:

CHALLENGES IN FOLLOWING A MANUAL AND A PAPER BASED PROCESS FOR DOCUMENT CONTROL

Streamlining Document Control to aid Critical Quality Processes

Document management and control is central to an effective quality management system. Organizations following manual and paper-based processes for managing control documents are realizing that such an approach is inefficient, costly and unsustainable. Be it batch records or quality reports, inability to manage the increasing number of documents can be a bottleneck in a growing enterprise.

Streamlining document management and control can help in critical quality processes such as

- Total Quality Management with ISO 9000, ISO 14000 and other ISO standards
- Supplier Quality Process
- CAPA and Non Conformance Management Process
- Customer Quality Process
- Operation and Regulatory Audit Process
- Quality Risk Management Process

The Responsibilities of the Document Controller

The document control department in companies in the Oil and Gas sector is responsible for maintaining all organizational templates and enforcing the same, responsible for sending and receiving the data for the review and approval cycles with client, coordinating interdepartmental initiatives like squad check and maintenance of the document status of deliverables that have been send for client review.

The document controller job seems easy enough at one look. But this profile involves maintaining templates and coordinating the communication with other project players in the complexity of engineering process. The Sheer magnitude of enterprise data involved and impact of document control in critical quality processes makes the role extremely significant.

Let's look at a typical scenario that highlights some of the challenges of this role.

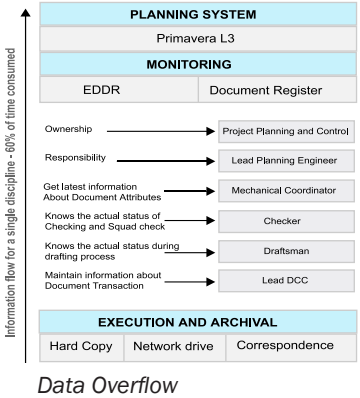
- ***Mr. Stephen(Client):*** *Chris, I had mailed you the specifications I needed to be changed for GI design drawing: 9087 but now you have changed the specifications for a different drawing and have sent it for review?*
- ***Mr Chris(Project Manager):*** *Vivek, you have changed the specifications of dwg no :9000 instead of 9087 !how did this happen?*
- ***Mr.Vivek(Engineer):*** *But Jack send me dwg no:9000 with the client's comments attached and with instructions to revise the same!*
- ***Mr Jack(Document controller):*** *I think I must made a mistake. The client comments came in by courier and I must have wrongly attached it with the drawing 9000. Chris, I cannot keep track incoming client comments, which drawing is to be revised, outgoing transmittals of some 10 projects happening together. Data is being thrown at me from all directions. We need to scale up our processes if we are to address multiple projects together!*
- ***Mr Chris(Project Manager):*** *Scale up to what? Jack, I have reviewed several document management systems but they are only partial solutions. I have still not found something that can completely solve the document control issues for our engineering process and at the same time be scaled to include the client's end also.*

THE CRUX:

A Paper based Manual system is incapable of managing the complexities in the Engineering process

Data Overflow:

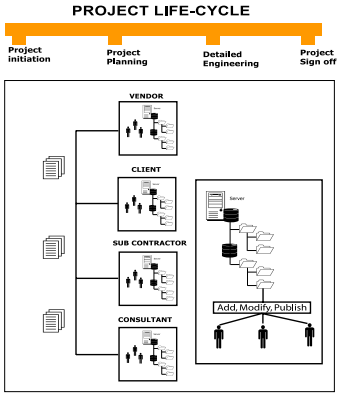
If the document controller implements his responsibilities through a manual process then there is a possibility of being defeated by the sheer magnitude of enterprise data.



Data Overflow

Enforcing organizational templates across the enterprise is difficult when individuals work locally:

Even if there is common drive the work culture will be such that templates are saved into local drives where there is no document control. Thus enforcing organizational templates is a challenge in a manual system.



The challenge of enforcing organisational templates in a distributed work environment

Tracing Deliverable status in the cyclic engineering process:

And then there is always the concern of human error when the updation of document status process is manual. Engineering data flow follows a cyclic pattern that is difficult to be captured through a manual process. The document will transit through a spectrum of lifecycles such as “issued for review”, “issued for approval”, “issued for production” etc... and at the same time there is the possibility that they are returned to the preceding stages if rejected by the client. The effort involved in tracing the status of each deliverable and documenting the dates received and client comments is often overwhelming.

The manual process is especially tedious when it comes to client communications.

All communications to client need to be send with phasing sheets that contain document content in specific formats which are client specific transmittal reports. There is also the risk that the DC may send the wrong data to the client due to some miscommunication. The client comments are received as a separate hard copy which has to be attached to the reviewed document and circulated among the team. Here again there is the risk of attaching the comments to the wrong document.

Challenges involved in maintaining the Documentation Guidelines of the client:

In a typical feed project the client, design consultant and vendor are key players. As part of the project there are many documents /oblique deliverable that are created and transacted between the various participants in the form of submissions. Each participant follows a separate corporate quality procedure that enforces them to maintain an internal revision number that for reference within the company and an external revision no series for every external agency the document is transacted to. Adhering to the technical documentation guidelines of the different players in the project and updating the relevant data are mainly handled through spreadsheets. The logistics of catering to documentation guidelines of multiple players might prove too much for the document controller leading to the Project Manager taking on this responsibility.

Challenges in the Paper based Process of Document Control:

The paper based process of document control is will add substantially to the project cost because of the printing and cartridge costs involved. If the templates are maintained in hard copy circulation of the same then enforcing templates within the organization will require a lot of effort. There is always the risk of misplacing the hard copies and loosing important data. During Interdepartmental Squad Check the squad check report with the documents placed for review has to be sequentially circulated among the interdepartmental team. The comments are collected manually and archived. The logistics of tracing the report and its status may lead to the document controller compromising such quality checks.

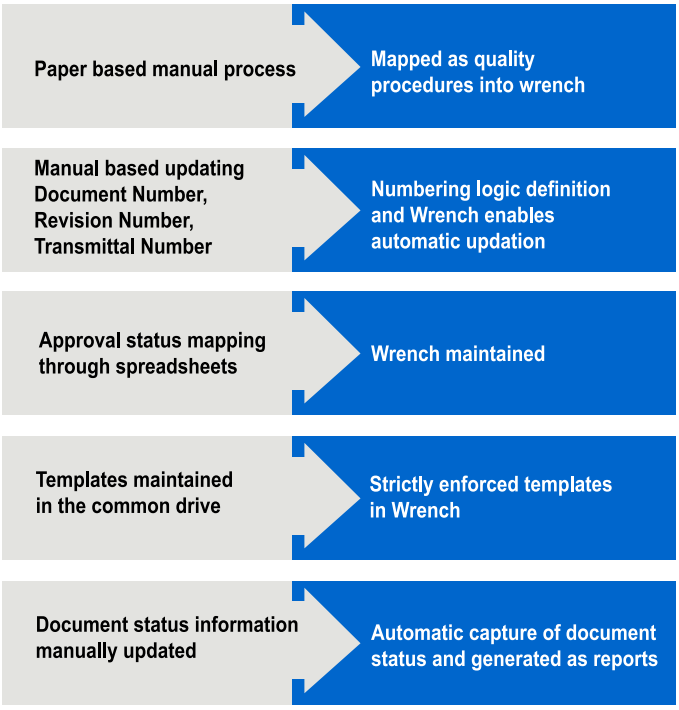
SOLUTION: PLM system that is tailor made specifically to suit the engineering process

Exercising Document control in the complex engineering process cannot be achieved through a manual paper based system. A document management system may provide a central secure repository for storage and retrieval of enterprise data but it can not address the challenge of capturing document status information nor does it completely meet the challenges of document control in an enterprise environment. There is no quickfixure for a challenge of such multi-functional dimensions -what is required is a complete solution for document control covering all the intricacies of managing enterprise data: enforcing organizational templates, capturing document status transacting through multiple lifecycles and accommodating multiple project players.

Wrench is a PLM software which is the complete solution to the challenges in the domain of document control. In fact it has been designed and tailor made to specifically cater to this domain. The paper based manual working methodology can be mapped as

process workflow into Wrench. All the numbering logics of document, project, transmittal, revision numbers etc can be fed into the system and is then maintained automatically without human interference. The document status information is captured by the system and can be extracted in a variety of reports.

Reports and transmittals can be extracted according to client specifications and defining them is a one-time activity.



Wrench Enterprise vests the role of the Document Controller

Wrench Enterprise offers

- A central, secure repository for efficient storage and retrieval of organizational templates.
- Substantial decrease in printing and stationary charges.
- Gain enterprise-wide visibility into document status with measurable performance metrics by automating the engineering process.
- Logistics of maintaining documentation guidelines is managed by system.
- Facility to maintain client communications like transmittal release and inclusion of Client feedback easily executable.
- Scalable system in which can Squad checks can be inbuilt in the process and system enforced

Now for a typical scenario after Wrench is implemented.

- ***Mr Stephen(Client):*** *Why is the project schedule facing a delay for this task?*
- ***Mr Chris(Project Manager):*** *Mr Stephen, We have sent all the documents for review and but cannot proceed further since you have not responded. As you can see here this is the system generated report for documents pending from client. This is the transmittal date in which we have sent you for the GI drawing 9089 for review. You can see that the project is held up by 40 man-hours because of the delay from your side.*
- ***Mr Stephen(Client):*** *Chris, Oh my bad! I will ask my team to review it as soon as possible and just so that this is not repeated again maybe we could revise our schedule to compensate for the delay.*
- ***Mr Chris(Project Manager):*** *Jack, that document status report came in very handy in the client meeting. I could convince the client that the delay was from their side.*
- ***Mr Jack(Document Controller):*** *Moving into WRENCH has made a huge difference! Document status of deliverables is captured whatever the lifecycles they are in. Enforcing templates is system enforced. All client communications happen through the system eliminating goofups. And once I define the documentation guidelines for document and transmittal numbering, revisions etc the system automatically updates them. And we already recovered the cost of the product in this quarter itself by drastic reduction in printing and stationary overhead.*
- ***Mr Vivek(Engineer):*** *Since the approval status codes are mapped into Wrench the system is intelligent enough to discern which documents need to be revised and I get them in my workspace so that I can be sure Iam working on the right drawing!*