# *Technical Documentation Support*

# *For*

# *Control Systems*

Srinivas Medida
CEO
Osmosys

OSMOSYS

12-5-29/2, Opp Andhra Bank
Tarnaka,
Secunderabad – 500 017
India

www.osmosys.asia

Doc Ref : Osm-TDSCS/014/1007

# Table Of Contents

# 1. Introduction

Technical documentation is a support activity but it is an important support activity. It is not the core function of engineering but it is something without which the engineering creation may be weak. Technical documentation is as important as a guy wire for a tower.

Technical documentation remained an important aspect of a product packaging before and after the advent of computers and even after the popularity of Internet. The documentation format and the delivery mechanisms have changed with time, but the basic content regarding the product remained the same.

At this stage, we can comfortably say that technical documentation has always been misunderstood as a function related to writing. Technical documentation is more of knowing what to write than knowing how to write. Only an engineer can perceive the difference between 200kV and 230V and this makes a significant difference in the quality of documentation.

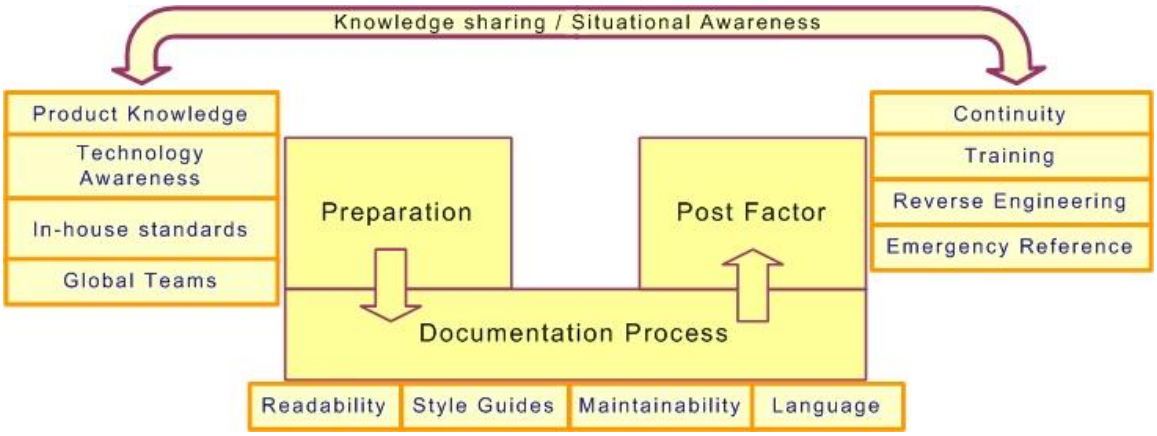
However, the engineers are always interested in the core engineering rather than take the time to create documentation. This caused a significant rift between the available time and quality of documentation.

Outsourcing technical documentation to people with a technology background meets the requirement and along with, brings a numerous advantages of outsourcing practices.

# 2. Documentation Life-Cycle

Effective and well planned Technical documentation has a life-cycle that complements a product life-cycle. A well implemented technical documentation provides for knowledge sharing as well as situational awareness.
The documentation life-cycle consists of three aspects:

a) Preparation
b) Documentation Process
c) Post Factor




## 2.1. Preparation

Creating and formatting huge amounts of text does not necessarily reflect Technical documentation. Unless the documentation engineer is well aware of the subject technology and its relevance to the readers, the document will be a lot of data without information.

Understanding the product, its functionality and the purpose it serves from the end user point of view is a critical first step towards effective documents. It is important to note that different readers look into the same document to obtain different information. The document shall intuitively direct each reader towards the desired content at that moment.

The documentation engineer shall also be familiar with the in-house standards in terms of documentation format, style guides to be followed, the approval procedures and maintenance processes.

All these parameters do play a significant role considering that the current teams are globally spread. A number of teams including product designers, developers and marketing team will have inputs that provide a direction to the document towards its audience.

## 2.2. Documentation Process

After compiling the necessary content knowledge, a technical documentation engineer converts the information in to an easy to read and comprehend material. Adherence to the in-house standards in terms of document layout and format is as important as sticking to a universal style guide like the Associate Press guide.

Understanding the end user in terms of their expectations and their level of knowledge influences the depth to which the subject is covered. The terminology and analogies used depend significantly on this knowledge. Continuous interaction with the team to accommodate ongoing changes of the product or services is required during this stage.

### 2.3. Post Factor

Good documentation is not a culminating activity. It is rather a continuous process contributing to bridge team knowledge, cross reference across enhancements and different versions. Some of the key contributions of an effective documentation include:

a) Knowledge spread to the new teams.
b) Product or service enhancements can easily reflect into the existing documents.
c) A well organized document performs as a quick and effective reference material during emergency situations. Often, changes in staff tend to create a knowledge gap during such conditions. Documents come handy to fill these gaps and resolve the situations saving time, money and reputation.
d) Well detailed documents also are used to verify the functionality of the application.
e) They also help in reverse engineering an application in terms of knowledge extraction without having to build and verify an application.

## 3. Documentation in Control Systems

Control system engineers are a bundle of enigmatic energy and a spectrum of knowledge including control engineering, communication engineering and computer hardware and software. Add to it the ever evolving standards incorporating new technologies and regulations to enrich the control system domain.

The unlimited amount of interactions and relationships keep the business going and growing – as a number of learning elements arrive through different forums and conferences.

With enough demand from these various corners, it is difficult for the control engineer to allocate time for technical documentation to create a justifiable quality documents. Amidst all these, the control system engineer manages to create and deliver a number of documents. The list shown here is a sample of the type of documents that are created in this domain.

- Functional specifications
- Design documents
- User manuals
- Training manuals
- Training presentations

The dynamism of control systems environment is unparalleled in other industries. The changes in terms of technology, continuous enhancement of features and services and the adherence to strict standards and regulatory bodies makes documentation a key element in this industry.

Continuous and high quality documentation significantly reduces the efforts involved in enhancing the quality of services.

# 4. Good Documentation

## 4.1. Measures of Good Documentation

The Documentation Process Maturity Model (DPMM) defines four levels in its structure.

| | Level 1<br>Ad-hoc | Level 2<br>Inconsistent | Level 3<br>Defined | Level 4<br>Controlled |
|---|---|---|---|---|
| **Keywords** | Chaos, Variability | Standards, Check-off list, Inconsistency | Product assessment, Process definition | Process assessment, Measurement, Control Feedback, Improvement |
| **Succinct description** | Documentation not a high priority | Documentation recognized as important and must be done. | Documentation recognized as important and must be done well. | Documentation recognized as important and must be done well consistently |
| **Key practices** | Ad-hoc process, Not important | Inconsistent application of standards | Documentation quality assessment, Documentation usefulness assurance, Process definition. | Process quality assessment and measures |
| **Key Indicators** | Documentation missing or out of date | Standards established and use of check-off list | SQA-like practices | Data analysis and improvement mechanisms |
| **Key Challenges** | Establish documentation standards | Exercise quality control over content, Assess documentation usefulness, Specify process | Establish process measurement, Incorporate control over process | Automate data collection and analysis, Continually striving for optimization |

The ideal target of every company is to achieve the Level 4. However, the practical situations everywhere influence the position in the matrix.

Keeping aside the ideal structure, the desired result of good documentation for a control systems company could be summarized into the following :

- Reduced service request calls from the user.
- Dependable documentation for easy reference during an emergency situation.

- Reduced training efforts to both customers and new teams internally.
- Good documentation functions as a trail to rebuild the evolution of a product or service.
- Good documents are easily scalable to add enhancements for future releases.

### 4.2. Achieving Good Documentation

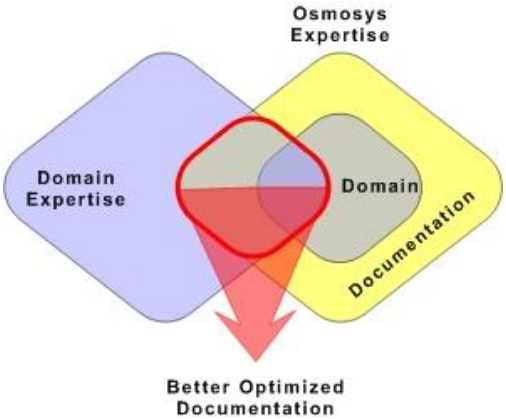
Good documentation requires dedicated team and an established process. Anything less leads to compromised quality and delayed delivery schedules. As shown in the DPMM table above, level-3 is the minimum required for a contributive documentation cycle.
Dedicated team that understand Engineering and has an awareness of the domains is difficult to recruit and retain for the purpose of documentation. Continuous changes in this team fails to meet the desired objective of high quality controlled documentation.

## 5. Osmosys Capabilities

Osmosys has been providing quality documentation services to various control systems teams across the world. Some of these services include:

- Product end-user documentation
- Internal application interface documents
- Training manuals
- Training presentations
- Reverse engineered specifications

Osmosys recruits only Electrical and Electronics Engineers who are interested and capable of creating and maintaining documents for the control systems world. In addition to having the domain knowledge, these engineers are trained in the various aspects of documentation including styles, structures, tools and methodologies.
Senior members of the team take a critical review to ensure the quality is never compromised.




This makes us provide high quality documentation services consistently, meeting your delivery deadlines.

> *"As a demanding client active in over 30 countries around the world with a myriad of projects on the go at any time, I can highly recommend Osmosys on an extremely high quality product, intense adherence to the client's needs, insistent loyalty, integrity, maintenance of deadlines and initiative." -* ***Steve Mackay - Technical Director, IDC Technologies***

## 5.1. Synergize with us

Synergize with Osmosys and you will find yourself enjoying the following benefits:

- The domain expertise from Osmosys brings in a high value proposition.
- Significantly improves the documentation quality.
- Drastically reduces the efforts from your Engineers.
- Optimized documentation using appropriate tools to reconstruct an existing system.
- Significantly reduced cost and time for every documentation activity.
- Easy scalability of the team on higher load is possible with our resource pool.