

Introduction to Industry 4.0

Assignment 1: Written Report

Course : MSc Industry 4.0 Advanced Manufacturing

Module Code : ACPA7004

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Standardization & documentation in Manufacturing

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Date : 25th March 2022

Table of Content

Abstract.....	1
Introduction.....	1
Aim & objective.....	2
Implementation Methodology.....	2
Background Research.....	3
The benefits	3
Concerns	4
Conclusions.....	4
Recommendation.....	4
References.....	4

Standardization & documentation in Manufacturing

(An driving force of innovation)

Abstract

It is been observed that streamlining processes could have several benefits for an organization for eliminating defects and controlling the efficiencies. Industry 4.0 technologies can take action to overcome issues in the manufacturing industry. Standardization & documenting the work processes will be an easier method to overcome the potential issue in the company. Report shows the potential issue raised in manufacturing industry, which are mentioned in the following paragraph rectified by setting up a standard process & document each and every bit of information from the customer for project execution. Organizations put a dedicated team or special department for assigning the standardization task accordingly.

This report reflects the two processes within the organization that impact the efficiency & lead to delays in the delivery to the customer & explicates the possible mitigation of the following issues with respect to the employ of industry 4.0 technologies. In industry manufacturing drawing errors and change of scope causes a delay for production release. Research shows to overcome this issue by standardizing the procedure & documenting the change in scope in the given task.

Introduction

Standardization is the process used to ensure that all members in a team are familiar with, and have a common understanding of marking standards and create documents that can be referred every time for better understanding & conventions in relation to the provision of feedback. It becomes more and more a driving force for innovation. In other words the term standards is used for indicating the concept of rules in different activities.

Research shows, documentation also plays a vital task in any organization for better results. For a change of scope in project work documentation helps to track changes & further to make reports about any defects as well as improvement in the process. Also states that whenever a change needs to be made in the original project plan, it should be requested and recorded under change activity with a number of factors or information documented like, assigned change number, proposed change with reason, the specific time required to fulfill the requirement.

The present report reflects the standardization roadmap of industry 4.0 which is good for companies to become progressively global. Industry 4.0 focus on digital manufacturing but also documenting the steps to perform any task, so the objects are establishing standards, reviewing existing & define new project and processes. Setting up standard procedures to create the manufacturing drawing will help us to avoid common errors. Also documenting any change of work digitally in the form of a checklist leads to avoiding delay & will act as proof while discussing with customers during a review meeting to achieve the target date.

Standardization efforts during the last years of the automotive industry started a different approach with the help of CiA. Also, Autosar is the currently well-known standardization effort in terms of the development process. The other industries like Coca-Cola Company use global standardization in marketing by keeping the appearance of the product the same irrespective of different languages are presented on the products.

Aim & objective

Vitality, process standardization with documentation tells us some of a set of rules governing how people in an organization are supposed to complete a given work or sequence of tasks in a specific manner. The aim & objective is to increase quality & reduce the variation in quantitative values within the industry. For business, standards improve systems and processes by reducing cost & maintain consistency. Documenting the task will act as single source of truth which saves time, energy & duplication of work.

Implementation Methodology

The implementation of the standardization process can rationalize development work with change in the organization. An action research approach is implemented which is coherent with our objective to contribute to product development. In the design dept, the work done by the designer is assessed by a number of reviewers all independently marking a sample of work and assigning grades using agreed criteria.

In the approach of individual checking, the team arranges a meeting then discusses and agrees on a grade, which serves as a benchmark for the project. The meeting confirms and clarifies other issues concerning marking and feedback. For example penalties on delay & quality of feedback should also be discussed so that it is as consistent as possible.

The main method of data collection was document study, observation of minutes of meeting & documents related to project process are mainly used to develop a better understanding of the decision. Refereeing a previously approved program is a better solution to the existing work package. The same design can be used with adequate modification as per new requirements resulting in saving work hrs & analysis. The proper documentation of both designs is noted in further design review activity.

Research shows, standardization checklist consists of following points in design organization.

- This exercise is on an annual basis where work is delivered as per customer standards.
- The process should involve consistency between designer & reviewer.
- The date of the standardization exercise must be documented on the template.
- Two way checking implementation in which a part of work is marked by two checker.

This checklist procedure definitely helps to minimize the drawing error by the designer before submitting it for design review. Standard template for further activities. This standard document helps the organization for audit purposes, every key factor for looking at companies information for quality enhancement and accounting the organization capabilities.

Background Research

The implementation of standards in the industry became very useful with the onset of the Industrial Revolution and the need for high-precision machine tools and interchangeable parts.

As I read in an article, Henry Maudslay developed the first industrially practical screw-cutting lathe in 1800. This allowed for the standardization of screw thread sizes for the first time and lined the way for the practical application of interchangeability (an idea that was already taking hold) to nuts and bolts.

Maudslay's work, as well as the contributions of other engineers, accomplished a modest amount of industry standardization, some companies develop their 'in-house' standards within their industries.

In one of the article, according to Frederick W. Taylor (1856-1915), the founder of classical management science, in-company standards were classified into management, operation, man-hour, and tools and devices. In his well-known work *The Principles of Scientific Management*, he described his standardization experiments in the factory and his findings as management principles in a factory, which included standardization of operation, tools, machines, raw materials, and workplace.

The benefits of standardization

Project work clarity Improves: The standard process eliminates the need for guesswork or extra searching. if we have a clear set of instructions in order to perform the task, employees will get straight to the point without wasting any time. It is very helpful to have documentation of the std procedure for change for scope in the project.

Quality enhancement: Lack of this process may lead to unavoidable consequences & going to be less reliable, and less consistent quality. The best way in which standardization can help to guarantee quality is by checking important points in the form of checklist templates & policy documents. This may lead to doing the work in a more optimized way & gain specific quality for each project delivery we made.

Productivity increases: The organization can cut waste and do more with the available resources. Tasks are completed in a more efficient manner. If the organization has three different systems for keeping track of workflows. Even if all systems are good but there are still chances for competition and conflict between the three different factions. This process benefits everyone in teams to work together. This means more productivity and less time wasted.

Boosts employee morale: As a general rule, everyone wants to know if they are doing a good job or not and always want to know how to achieve that distinction. Having to apologize for inadequate or incorrect work can be humiliating as well as stressful and frustrating if did not understand how to begin. The standards process teaches employees to do efficient & high-quality work with ownership and pride in the work that they do.

Perfects customer service: Standardization can address customer service directly through standardized processes for talking with customers and methods for centralizing information. This will definitely increase customer satisfaction for the business growth.

Additionally, documentation reduces the waste of time in searching the things, minimizes the error with great customer service & also has lower training costs.

Concerns

Although there are many benefits of standardization, the idea of developing processes and procedures to perform tasks effectively may cause concern to people who are not used to it.

Uniformity: Doing things in a uniform manner sounds boring for some people. The key thing to understand here is that removing doubt and establishing a standard process can help employees to feel that they are actually accomplishing things at work.

Non-creativity: Standardizing crucial processes in an organization may result in less creativity. The standardized process can be updated over a period of time as per the circumstance if required.

Conclusions

The framework presented in the report will help us to know that standardization brings innovation, first because it provides structured methods and reliable data that save time in the manufacturing data release process and to circulate ideas about leading-edge techniques.

Effective reflection will further streamline your project documentation and change management processes and lead to increased success in your future endeavors.

Recommendation

In companies, standardization management has to be established which will perform tasks to create standards as well as document the work order with the latest updates as per customer requirement. This information will defiantly help the engineering dept to release manufacturing tasks accordingly.

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