Standardization, Rationalization, Specifications

Standardization

Standardisation is the process of developing and agreeing upon technical standards. A standard is a document that establishes uniform engineering or technical specifications, criteria, methods, processes, or practices. Standardisation is an essential tool of Indian Railways. The main aim of Standardisation in Indian Railways is to reduce the existing inventory without affecting the preparedness/efficiency of the Railway operations.

Codification is the process of standardizing and developing a norm in writing for any item.

Standardisation is an essential for railway operations and management. The lesser number of items procured, stocked, maintained, transported and used by railways, the better it is for efficient management. The main aim of Standardisation in Railways is to reduce the existing inventory without affecting the preparedness/efficiency of the railway operations. To accomplish this goal in

Indian Railways, the “Research design and standards organisation (RDSO) was established in the year 1921”.

The **Research Designs & Standards Organisation (RDSO)** is an ISO 9001 research and development organisation under the Ministry of Railways of India, which functions as a technical adviser and consultant to the Railway Board, the Zonal Railways, the Railway Production Units, RITES and IRCON International in respect of design and standardization of railway equipment and problems related to railway construction, operation and maintenance.

To enforce standardization and co-ordination between various railway systems in British India, the Indian Railway Conference Association (IRCA) was set up in 1903. It was followed by the establishment of the Central Standards Office (CSO) in 1930, for preparation of designs, standards and specifications. However, till independence in 1947, most of the designs and manufacture of railway equipment was entrusted to foreign consultants. After independence, a new organisation called Railway Testing and Research Centre

(RTRC) was set up in 1952 at Lucknow, for undertaking the intensive investigation of railway problems, providing basic criteria and new concepts for design purposes, for testing prototypes and generally assisting in finding solutions for specific problems. In 1957, the Central Standards Office (CSO) and the Railway Testing and Research Centre (RTRC) were integrated into a single unit named Research Designs and Standards Organisation (RDSO) under the Ministry of Railways with its headquarters at Manak Nagar, Lucknow.

Rationalisation

There are some features for rationalisation such as to eliminate unnecessary equipment, personnel or process from a organisation in order to make it more efficient and function according scientific principles of management in order to increase efficiency. Also if an organisation have a good management then workers will work more comfortable and they know what they need to do and work more harder under this good atmosphere, this will benefit the organisation as the workers work more harder, that's why organisations consider about it.

Broadly there are eight elements of rationalisation, which are as follows-

1. combination
2. standardisation
3. specialisation
4. simplification
5. mechanisation

6. modernisation

7. application of scientific management on industry wide scale and

8. social objectives

1. Combination:

Rationalisation brings about the integration or merger of different types of inefficient and weak units for enjoying the economies of large scale production and distribution. This also ensures the planned utilisation of available resources and removal of idle capacity.

2. Standardisation.

This is another important feature of rationalisation which aims at removal of unnecessary varieties of different types of products. It is concerned with the production of lesser varieties of standardised products.

3. Specialisation.

Standardisation leads to specialisation. The work is divided in accordance with the nature of different types of activities. In other words, specialisation leads to division of labour. Specialisation leads to most effective

and proper utilisation of available resources like materials, manpower, machinery etc.

4. Simplification.

On account of standardisation and specialisation production processes are considerably simplified. This leads to higher production with lesser costs and ensures increased sales of each variety of products.

5. Mechanisation.

Mechanisation is one of the important features of rationalisation which aims at replacing human labour with machines. Mechanisation further leads to automation which increases the speed and efficiency of production.

6. Modernisation.

The replacement of old and absolute machines and equipment with modern techniques of production is another distinctive feature of rationalisation. The modern techniques and innovations of production are integral components of the schemes of rationalisation.

7. Application of Scientific Management on Industry Wide Scale:

Rationalisation is concerned with replacing the old and traditional methods of production with the modern and scientific techniques applicable to different firms operating in particular industry. The methods of scientific investigation and management will ensure greater efficiency, lesser production costs and saving of time.

8. Social Objectives:

Rationalisation is not only concerned with the increase in the productivity but also with the overall prosperity of all the sections of the society. It has both social and human values. To the producers it reduces the cost of production and increases profits.

For workers, it ensures increased earnings, limited working hours and other improved working conditions. Consumers get better quality, services at cheaper prices.

Specifications

A **specification** often refers to a set of documented requirements to be satisfied by a material, design, product, or service. A specification is often a type of technical standard.

There are different types of technical or engineering specifications (specs), and the term is used differently in different technical contexts. They often refer to particular documents, and/or particular information within them. The word *specification* is broadly defined as "to state explicitly or in detail" or "to be specific".

Requirement specification

A **requirement specification** is a documented requirement, or set of documented requirements, to be satisfied by a given material, design, product, service, etc. It is a common early part of engineering design and product development processes, in many fields.

Functional specification

A **functional specification** is a kind of requirement specification, and may show functional block diagrams.

Design or product specification

A **design or product specification** describes the features of the *solutions* for the Requirement Specification, referring to either a designed solution **or** final produced solution. It is often used to guide fabrication/production. Sometimes the term *specification* is here used in connection with a data sheet (or *spec sheet*), which may be confusing. A data sheet describes the technical characteristics of an item or product, often published by a manufacturer to help people choose or use the products. A data sheet is not a technical specification in the sense of informing how to produce.

"I**n-service**" or "**maintained as**" **specification**

"I**n-service**" or "**maintained as**" **specification** specifies the conditions of a system or object after years of

operation, including the effects of wear and maintenance (configuration changes).

Specifications are a type of technical standard that may be developed by any of various kinds of organizations, both public and private. Example organization types include a corporation, a consortium (a small group of corporations), a trade association (an industry-wide group of corporations), a national government (including its Railway system, military, regulatory agencies, and national laboratories and institutes), a professional association (society), a purpose-made standards organization such as ISO, or vendor-neutral developed generic requirements. Voluntary standards may become mandatory if adopted by a government or business contract.