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# Six sigma ( 6 $\Sigma$ )

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### Introduction

Six Sigma (6  $\Sigma$ ) is a company marketing technique that strives to maximize consumer satisfaction while minimizing errors. Although it was created by Motorola USA in the 1980s, statistical process control, or SPC, dates back to the 1920s.

### Definitions

Six Sigma is a technique and a collection of tools for raising quality to 3.4 errors per million or better. A thorough awareness of client demands, the rigorous use of facts, data, and statistical analysis, as well as careful management, improvement, and reinvention, are what make 6  $\Sigma$  special.

The 6  $\Sigma$  stands for the statistical concept of deviation from the mean ( $\Sigma$  6 is the Greek letter used to symbolize this concept). It is a statistically supported methodology for raising product quality in order to better serve customers of Bob Galvair of Motorola, Larry Bossidy of Allied Signal and Jack Welch of General Electric developed a framework to make 6  $\Sigma$  happen..



General Electric define six sigma 6  $\Sigma$  as:

Through few concept

Critical to quality – Attribute most important to customer

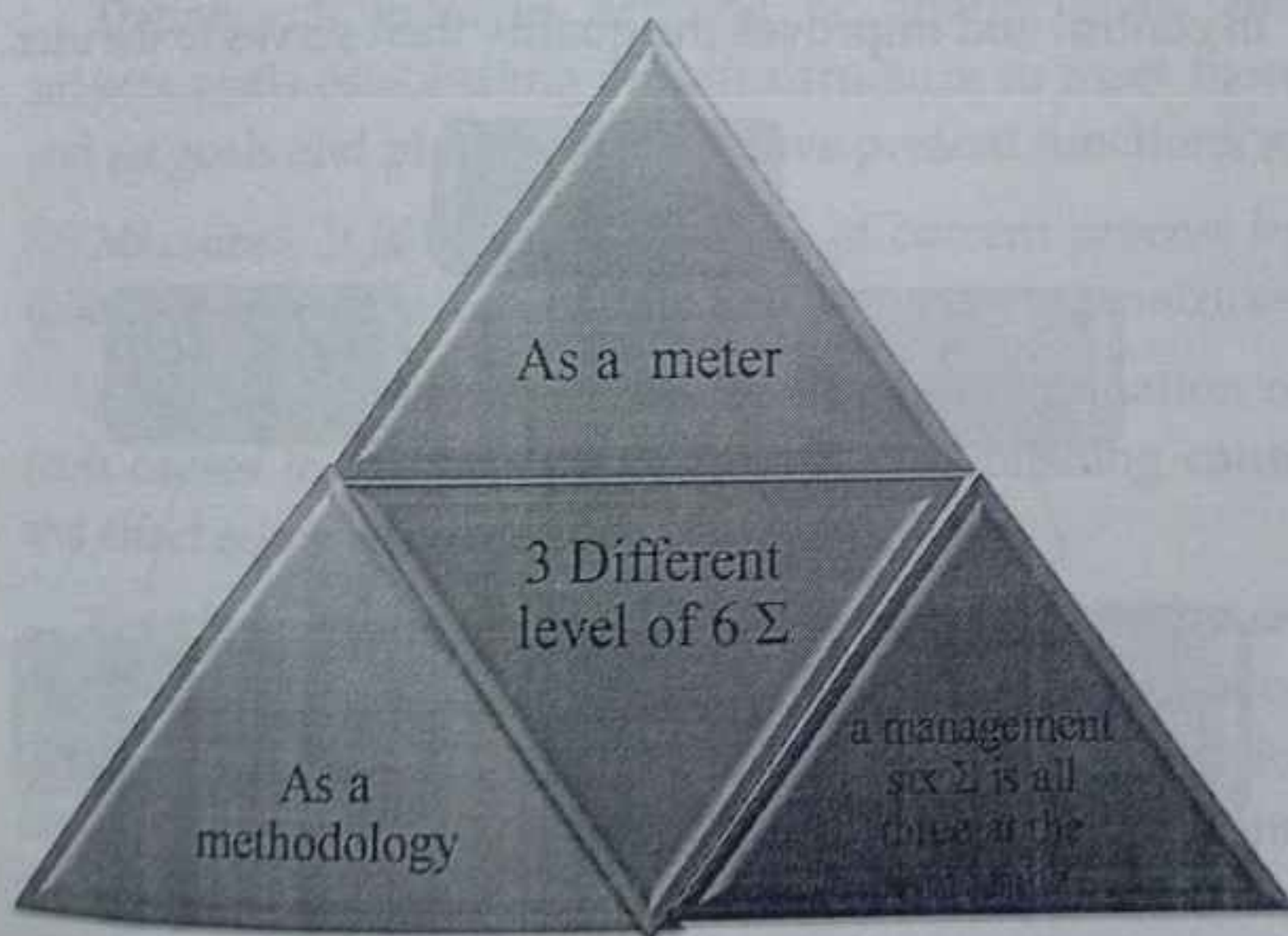
Defect – Failing to deliver what the customer wants

Process Capability – What your process can deliver.

Variations – What the customer sees and feels

Stable Operation – Ensuring consistent predictable process to improve what the customer sees and feels.

Design for 6  $\Sigma$  size – Designing to meet customer needs and process of capability.



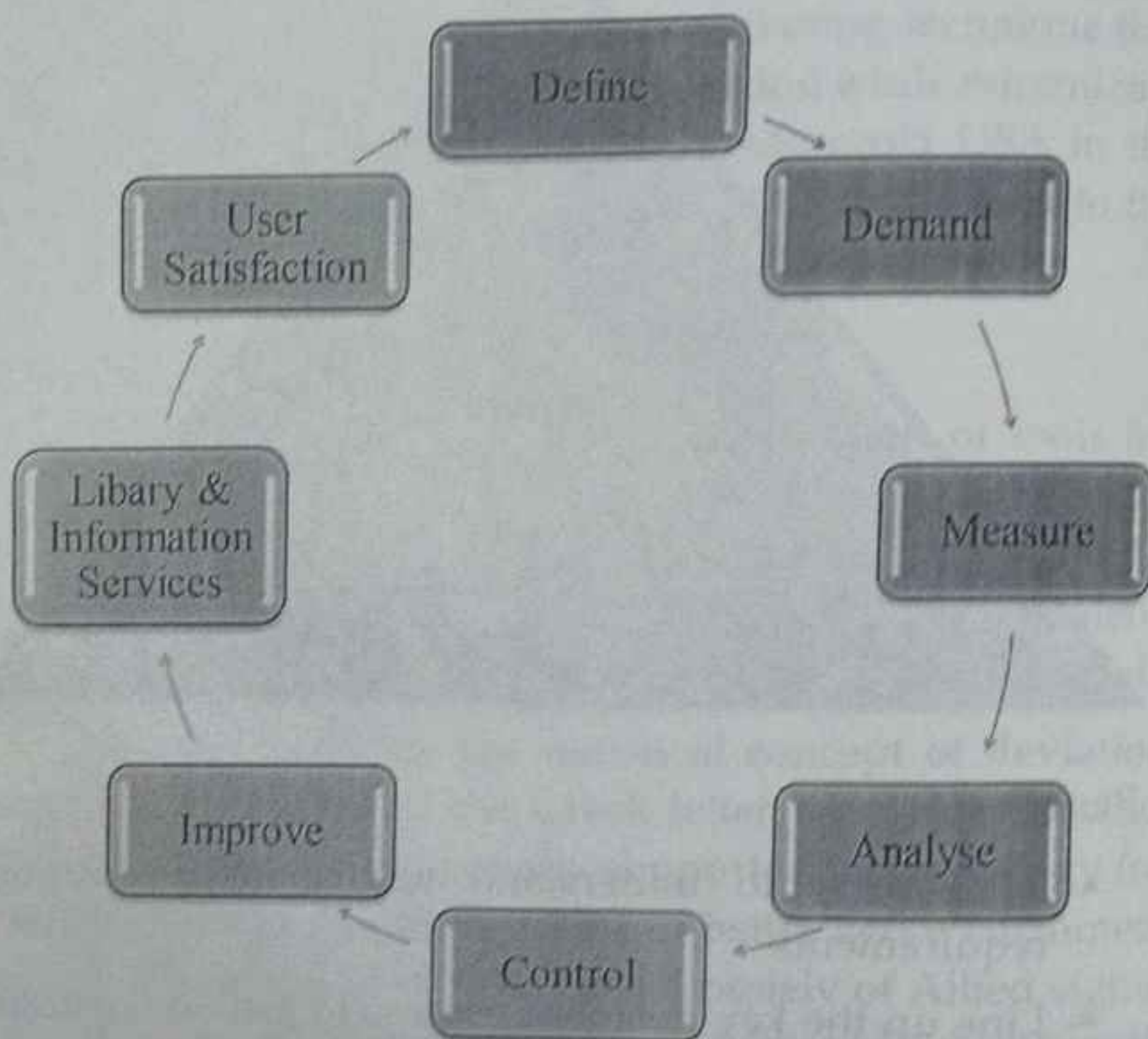
### Benefits

- 6  $\Sigma$  helps to understand and manage customer requirements.
- Line up the key business process to achieve customer requirement



- Exploit accuracy in data analysis to minimize defects in the process.
- Bring fast development and continuous improvement to the business process.
- Helps to work smart rather than hard.
- Bringing the efficiency among employees.

Quality Management Process in Libraries – Generally libraries are giving much attention to quality service to focus on customer satisfaction. Quality services can be desired if libraries improve their management efficiency. In General “tailor” made service through the process of Six Sigma ( $6\sigma$ ). The diagram shows that a very first defines the demand of the user and then measures it. Analysis of the same makes in control and improves the quality then serves to the user.





## Process of Quality management in Libraries

Library is a place where enormous of information is acquired stored, classified and disseminated to its users at the maximum to satisfy their needs to achieve this task library should have quality management process in libraries. So we have define the actual needs of the library users by focusing on their demands measure analysis and control over it.

It also called DMAIC methodology

D  $\rightarrow$  Define, M  $\rightarrow$  Measure, A  $\rightarrow$  Analysis, I  $\rightarrow$  Improve, C  $\rightarrow$  Control

DMAIC is targeted to improve existing business process

**Define** – It involves defining or finding goals and subjects goals establishing an infrastructure to meet these and set goals and planning to improve present functioning.

**Measure** – It is the measurement of current process by collecting different kinds of data and by preparing matrices.

**Analysis** – The analysis involves the determination of roots causes in the present process by establishing cause and effect relationship.

**Example** – Feedback can be taken about pr. Library set up and regarding what new services should be introduced and how the status of existing library products and service can be enhanced in terms of collection in terms of collections, timing, staff, etc.

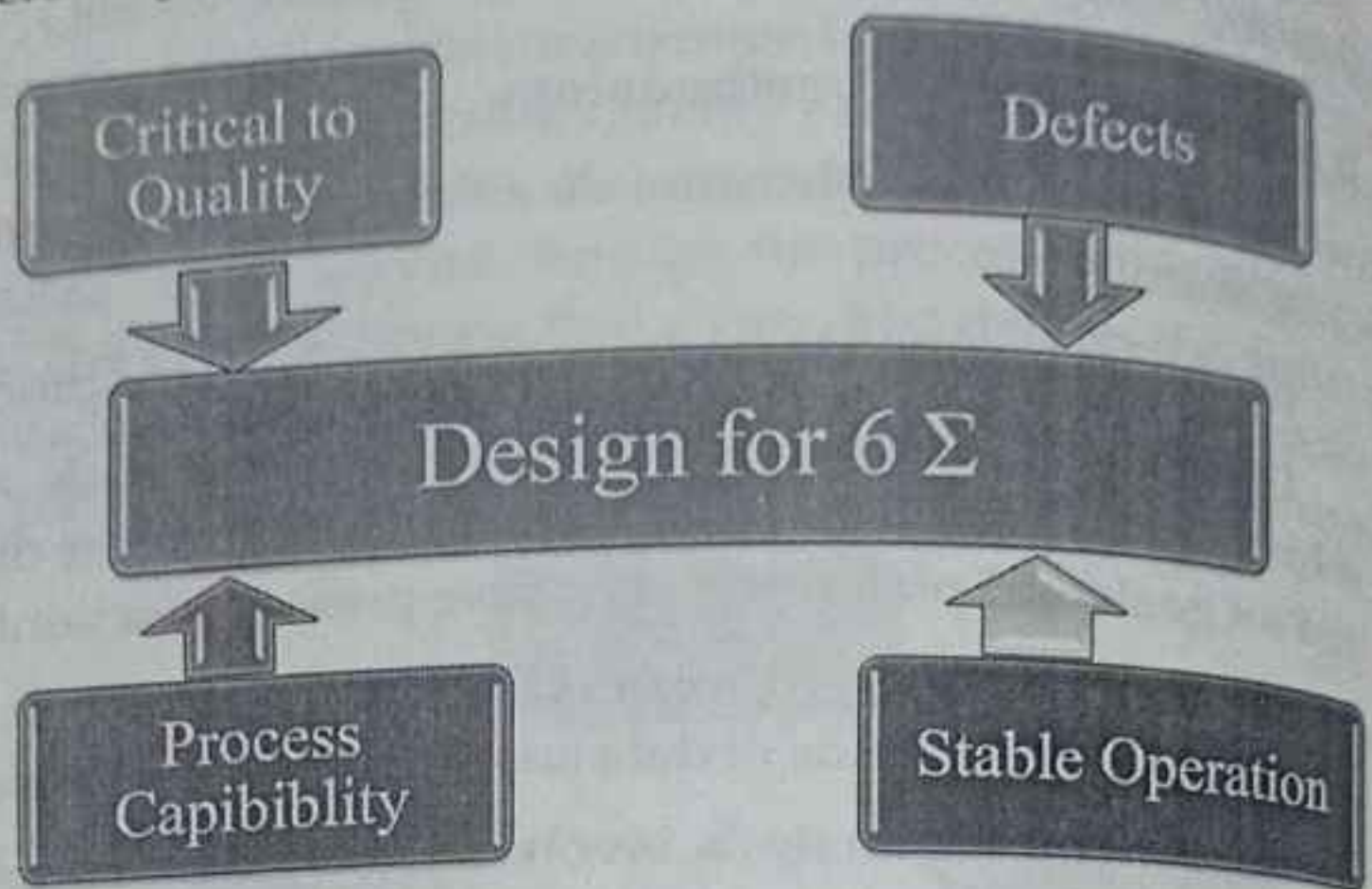
**Improve** – Using data matrices and analysis of above phase (orientation of users towards the library services and resources. User education for improvement through seminar exhibition, lectures library portal and library web site are the best option). Better techniques are opted in the organization for elimination root cause of effects.



**Control** – It demands continuous monitoring of the process techniques of all the stockholders regular feedback from customers and people within the organization for improvement are asked for.

### Key Concepts of Six Sigma

In General 6E has few concepts such as critical to quality, defects, process



### Key concept of 6 Σ

**Critical to quality** – This is one of the concept of 6E to have attachment with customers .In General if you have close relationship and contact with customers you may easily come to know their demand need and complains. The base for the quality is to know the important and significant need of the customers.

**Defects** – This process helps you to overcome the failure at the same it will help you to minimize the defects when you eliminate the defects simultaneously you can reach the point of what the customers wants.

**Process Capability** – This steps helps you to analyze



yourself delivery. Though this course you can analyze and improve the procedure to deliver your goods to customers.

**Stable Operation** – Every action has its own reaction likewise if you follow the above methods you can develop the consistency can predict can process and can improve what exactly customers sees and feels.

The above all concepts will guide you to meet customers' needs in an easier way

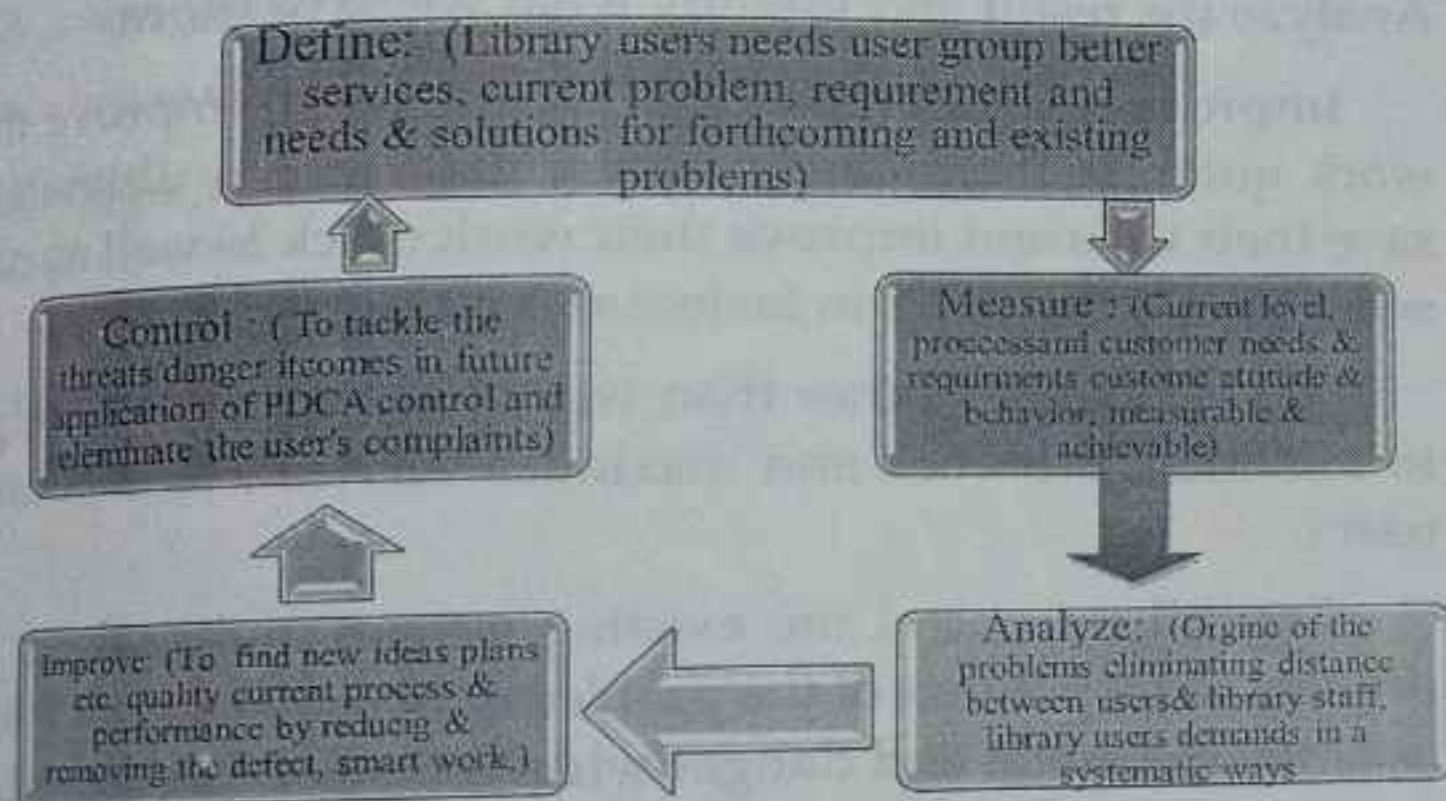
### Methodology of 6 $\Sigma$

There are two types of methodologies in 6  $\Sigma$  one is DMAIC another is DMADV

**DMAIC** stands for define – measures – analyze – improve and control

DMAIC which is used to improve an existing business process.

**DMADV** stands for – Define – measure – analysis – Design Verify which is used to create new product design or process design.





## Flow Diagram of DMAIC Process

**Define** – We found out the problem define it clearly and analysis from where it starts:

- Define library users needs
- Define the better services to provide to the library users
- Define the users growth of the library
- Define the current problems present and existing requirements for the library users.
- Define the solutions for forth coming and existing problems in the library.

**Measures** – Measurements will be done on data collections and analysis mapping the process and understanding and description of analysis according to the age sex scholarship, occupation and frequency. Measure the available source and services in the library .It can be attitude and behavior of the library users.

**Analyze** – Analyze the root cause of the problem to find the better solution. This process helps to minimize the distance between library employees and library users. Analyze the result and identify what we have learnt.

**Improve** – This phase help the library to improve the work quick fast ultimately library employ can ultimately save their time and improve their work quick as well as can serve the library users in fastest and quickest.

To work smart rather than work hard ultimately helps to minimize the work and maximize service to the library users.

**Control** – Control the existing system and policies to prevent the repetition of the problems. In this stage we learn how to able threat and danger which comes in the future.



This also helps you to review and update the process.

PDCA is the most important structure for the overall static planning's needs analysis. Curriculum design and collection development library goal setting and evaluation, provision for development and enhancement users. Services and their needs and library instructions.

**Plan** – Determine what when why and how should improve existing library services and sources.

"Setup the goals and objection to process necessary improvement for the library"

**Do** – Implement the processes and reach the expected standard result.

**Check** – Study the existing one and create a new one to suit the betterment for the library user.

**Act** – Determine the change to bring the betterment to improve the process.

## REFERENCES

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