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Research Paper

Competency Mapping: Gap Analysis Study In Central Sterile Supply Department(CSSD) Of A Multispecialty Tertiary Care Hospital

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ABSTRACT
Purpose: The Central Sterile Supply Department technicians are related to exhibition of lot of skill, knowledge, personal attributes, and behavioural attributes with high end machineries for sterilization. Hence, in this study, the Gap in the competency mapping with the required to existing competencies among these technicians will help the management in improving the established department with quality of the work delivered, with highly efficient staffs and organizing appropriate training and development programs.
Methodology/Approach: The study is performed in two phases: Phase 1& Phase 2
Phase 1: Defining the competencies and assessment of the technical, managerial, and human attributes related competencies among the CSSD technicians and find out the gaps if any.
Phase 2: Calculation of the competency scores for the technical, managerial, and human attributes related competencies among the CSSD technicians and applying the DMAIC Quality tool.
Findings/Results: The compiled data are analysed using frequency, percentage, Mean and Standard Deviation(SD). Simultaneously the quality tool DMAIC (Define, Measure, Analyse, Improve and Control) will be applied for data driven improvement cycle to bring in an improvement, optimization, and stabilization in the competency mapping of the CSSD manpower management process.
Originality/Value: When competency mapping is put into practice, the emphasis will be on the skills gaps that are necessary for the work at hand and can be filled through training. The research is very important to the employees and the organization because it gives each person a better understanding of the skills they have, the potential they have, and how others see them. It will also help the organization to improve its overall efficiency and effectiveness when applied to all categories of staff. The same study tools can be applied for other technicians in departments such as Radiology, operation theatre, anaesthesia, dialysis and improve their work competencies.
Paper Type: Case study
Keywords: *Competency Mapping, Central Sterile supply department, Functional Knowledge, Managerial skill, Human Attributes.*

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I. INTRODUCTION

The process of identifying key competencies for a firm or organization, as well as the roles and functions within it, is described as competency mapping. The level of competence required for a given job depends on a range of variables. The variables include social culture, the nature of the business, the business environment, organizational culture, the work environment, the organizational structure, the duties and responsibilities, the processes and activities assigned, the nature of the colleagues' attitudes and motivations, and

the superiors' and subordinates. Some of these variables could vary over time, resulting in altered organizational competency standards for the same job post. The human resource is the only resource that can benefit from useful inputs, in contrast to other resources. It is one of those possessions that appreciates over time. It is consequently viewed as a resource that can be developed using the training and development. [1]. Competencies can serve as the basis for creating an organizational structure that will allow human resources to continuously bring value to a company. The key components of Competency are skill, knowledge, personal attributes, and behavior. By defining high standards for performance, competency mapping enables a structured approach to professional growth, which boosts job satisfaction and increases employee retention. The effectiveness and efficiency of the hiring and selection process are improved by competency mapping, which identifies performance requirements.[2]**.** The Central Sterile Supply Department is responsible for preparing medical/ surgical supplies and equipment so that they are sterile and ready for use in patient care. [3].

II. LITERATURE REVIEW

2.1 Related works

HRD strives to continuously assess the competencies needed by various employees to carry out the tasks allocated to them effectively and to offer opportunities for these persons to grow their competencies to position them for future roles within the business. The job descriptions are created by RXY Laboratories considering the job roles that each employee does. A detailed analysis of employee competencies, including attributes, skills, and knowledge characteristics, as well as a gap analysis between desired and actual skills and an evaluation of the employees' training needs, were the objectives of the study. Overall employee performance improved, and the organisation received information about the skills each person possessed, allowing for the development of internal promotion initiatives.[4]Competency mapping is a crucial process that is significant. Every well-run business should have clearly defined responsibilities as well as a list of competencies needed to carry out each function successfully. Such a list ought to be utilised for hiring, performance management, promotions, placements, and identifying training needs is discussed in this paper. It is mentioned that, prior to performing or carrying out work, it is crucial to identify the talents needed for the job. This information aids in both finding people with the necessary talents for the job as well as those whose abilities will help the job be done successfully. Even so, having these skills alone is frequently insufficient for doing well. Complementing the abilities with the relevant knowledge and attitudes is also essential.[5]

Table 1 Literature review summary

Sl. No.	Research Topic	Research Focus	Reference Number
1	A study on competency mapping among nurses at a tertiary care hospital, Kakinada-Andhra Pradesh.	The study emphasises the need for organisations to quantify the skills and competences that their workforce members possess. As a result, the hospital has been able to pinpoint competency and skill gaps within its employees. The organisation can organise their training programmes for all nurses using the tool provided by this activity. The data was analyzed using the statistical tools like percentage analysis, student T test and Consistent tests (Cronbach alpha and AHP).	Rajesh D. 2019[6]
2	Advanced competencies mapping of critical care nursing: qualitative research in two Intensive Care Units.	They were able to compile a list of various individual skills, behavioural traits, and moral qualities at the conclusion of their study. They concluded that, if the healthcare system paid more attention to the nursing figure, there would be significant possibility for professional advancement.	Alfieri E, Mori M, Barbui V, Sarli L. 2017[7]
3	Competency mapping. International journal of scientific & engineering research.	One of the most effective methods for determining a person's work and behavioural competencies inside an organisation is competency mapping. Competency is the collection of information, abilities, and attitudes needed to carry out a task successfully and effectively. A competency is something that explains how a task might be completed exceptionally well; a competency just explains what must be done, not how. The foundation upon which an individual rests is their core competency, which cannot be duplicated.	Yuvaraj R.2011[8]
4	Managerial competence: do technical capabilities matter?	These four elements make up this model: First, technical skills, which include knowledge of fundamentals, an appreciation of engineering drawings, an understanding of manufacturability, an understanding of material selection, an understanding of new trends, etc., next technical leadership ability, communication ability, people management skills, etc., followed by group problem-solving skills including problem analysis, creativity, and originality, thirdly, managerial skills including perseverance, quest for knowledge, business understanding, visualisation, attention to detail, etc. Finally, aptitude including analytical prowess, originality, risk-taking orientation, etc.	Rajadhyaksha U. 2005[9]

5	Competency mapping in project management: An action research study in an engineering company.	Competencies can be used to translate strategy into individual and work-related skills and behaviours that people can quickly comprehend and, therefore, put into practise. Individuals can manage their future job or career success by understanding and applying the knowledge contained in a competency model, as well as by being aware of their unique competency strengths and weaknesses. They can also use this knowledge to navigate their current career path or apply it to investigate new career opportunities while considering the use of transferable skills.	Takey SM, de Carvalho MM.2015[10]
6	Understanding competencies and competency modelling—A literature survey.	The suggested approach is clear, scalable, and insightful for managers in all industries and entails the following steps: a description of competence and performance criteria, an assessment process, a diagnosis of current proficiency level, the identification of competence levels that distinguish professional categories, the establishment of expected profiles, a gap analysis, and the relationship between experience and competency development.	Chouhan VS, Srivastava S. 2014.[11]
7	Competency mapping and analysis for public health preparedness training initiatives.	The paradigm created for this study offers fresh perspective on how degree programmes align with capabilities. As a result, the framework can be used more broadly to monitor and improve the quality and professional standards of degree programmes in construction by accrediting authorities. This could improve connections between recent graduates and the sector.	Calhoun JG, Rowney R, Eng E, Hoffman Y.2005. [12]
8	A disaster response and management competency mapping of community nurses in China.	A first step toward achieving higher-level leadership and synergies among the numerous partners involved in public health preparedness, both locally and nationally, is provided by the tools provided for increasing faculty and trainer understanding, acceptance, and utilisation of competency-based learning and assessment methods.	Yu LU, Ling LI, Huang WQ, Ya-Na YA, Jie DE, Chun-Hong YI, Hui RE, Xian-Yuan WA.2013.[13]
9	Development of a competency mapping tool for undergraduate professional degree programmes, using mechanical engineering as a case study.	Four factors, experiences in disaster relief, participation in disaster training, age, and length of employment were found to be the most important ones that significantly influence a person's integrated competency in disaster response and management. Most Chinese community nurses possessed the minimal training and skills necessary to handle the duties of disaster response and management. To increase their competency, additional specialised disaster training, such as virtual reality-based drills, should be offered.	Holmes DW, Sheehan M, Birks M, Smithson J.2018.[14]
10	A competency mapping for educational institution: Expert system approach.	The combination of subject outcomes then permits extremely thorough programme level examination. With elements of professional development built into the programme, the mapping process is made to be minimally administrative. The paper's description of an efficient competency mapping tool makes it possible to quantify learning within a professional degree programme and offers a method for overall programme development.	Tripathi P, Ranjan J.2010.[15]
11	Competency Mapping as a Strategic HR Tool in Manufacturing Industry: An Empirical Study.	. This work emphasises key steps in the competence management process by developing an expert system. An extensive literature review on the operation of competency management as well as interviews with competent managers and experienced deans served as the basis for the knowledge acquisition for this expert system. An expert system shell serves as the system's development tool.	Johri A.2014.[16]
12	Competency mapping in action: A critical review.	The existing research studies and analyses the competency mapping process, i.e., how organisations apply the process, and seeks to understand how firms strategically use the competency mapping process to accomplish results and employee commitment. Ten manufacturing enterprises in the Pimpri-Chinchwad Municipal Corporation (PCMC) region of Pune that were using the competency mapping approach were surveyed to examine the process.	Bhasin H, Sharma R.2018.[17]
13	Competency mapping in knowledge-based organizations.	The study's goal is to assess the competency framework's implementation and usage in Indian enterprises critically. To improve performance management, reward and recognition systems, and career and succession planning programmes, organisations must identify and build their skills.	Kansal J, Jain N, Satyawali PK, Ganju A.2012. [18]
14	The handbook of competency mapping: understanding, designing and implementing competency models in organizations.	Employee education on process mapping and process improvement is crucial for the overall growth of the firm and its employees. The current study explores at great depth about competency mapping at different levels in a knowledge-based organisation and analyses the skill gaps that must be filled to raise the level of competency. The investigation was conducted using Chandigarh, India's R&D facility as a model Knowledge Based Organization.	Sanghi S.2016. [19]
15	Evaluating assessment with competency mapping.	Conducting a Job Analysis, creating a Competency-based Job Description, and lastly mapping those competencies throughout the HR procedures are the steps in competency mapping that lead to job evaluation. Thus, the competencies listed in the relevant job description become the criteria used to evaluate performance.	McNamara RA.2004. [20]

III. NEED FOR THE STUDY

With the pre-disinfection, cleaning, packaging, and sterilization of all items being done in one department, it is essential to offer not just consistently high standards for the sterilization processes and product quality, but also competent technicians who can operate this machinery. An efficient processing is essential for effectiveness, economy, and patient safety given the increasing number and variety of surgical operations and medical device variants along with competent staff to handle above all works in the right way at right time.CSSD technicians are related to exhibition of lot of skill, knowledge, personal attributes, and behavioural attributes with high end machineries for sterilization such as steam sterilizers, Plasma sterilizers, ETIO machine, washer disinfector etc., Hence, in this study, the Gap in the competency mapping with the required to existing competencies among these technicians will help the management in improving the established department with quality of the work delivered, with high efficient staffs and organizing appropriate training and development programs.

IV. OBJECTIVES

1)To study the technical, managerial & human competencies of the CSSD technicians.
2) To measure the gaps in required and existing level of competencies among the CSSD technicians.
3) To calculate the competency scores for the defined technical, managerial, and human competencies and apply Quality improvement tool.

V. METHODOLOGY

Source of data, study setting: Interview of the CSSD Technicians with structured questions.
Study subjects/participants: CSSD Technicians
Study Design: Descriptive study
Study duration: 6 months
Phase 1: Defining the competencies and assessment of the technical, managerial, and human attributes related competencies among the CSSD technicians and find out the gaps if any.
Phase 2: Calculation of the competency scores for the technical, managerial, and human attributes related competencies among the CSSD technicians and applying the DMAIC Quality tool.
Sample size calculation: As all the CSSD technicians (14) are considered for the study, the sample size calculation is not applicable in this study.
Method: The compiled data will be analysed using frequency, percentage, Mean and Standard Deviation (SD). The competency score will be calculated for gap analysis.
Inclusion and exclusion criteria: All the existing CSSD technicians during the study duration are included in the study. Other than technician's category of staff in the CSSD are excluded from the study.

VI. FINDINGS, RESULT AND ANALYSIS

Phase 1:
Section 1: Study of the Technical or functional knowledge, Managerial Knowledge, and Human attributes of the competency mapping.

Table 2Categories of competency

TECHNICAL/FUNCTIONAL KNOWLEDGE	MANAGERIAL SKILLS	HUMAN ATTRIBUTES
business awareness	**customer oriented**	**Communication**
organizational awareness	**planning skills**	**Teamworking & Interpersonal effectiveness**
technical skills	**cross functional perspectives**	**Integrity**
external awareness	**concern for excellence**	**Transparency**
	Judgement	
	Leadership	
	delegating and supporting organization-subordinates for coordination.	
	risk taking	

Table 2 explains the factors under each of the categories of the Competencies [2] among the human resources. These categories explain certain specific factors for each of the competencies to be assessed. Based on these factors the competency mapping could be performed in any organization. This study also considers the same categories.

Section 2: Gap analysis of the competencies among the CSSD technicians in the selected Hospital. The competencies required to that existing was assessed using structured question in an informal interview method. The structured questions consist of statements pertaining to Demographic characteristics, Technical or Functional Knowledge, Managerial Skills and Human Attributes that were framed with importance to the various categories of competencies. The compiled data are analysed for levels of competencies in all three categories for required to that of existing and gaps identified with competency scores.

Table 3 Demographic Data details

Details	Variables	N (Total Respondents)	Percentage
Age in Years	21-30years	6	43%
	31-40years	8	57%
Gender	Male	8	57%
	Female	6	43%
Years of Experience	1-10years	8	57%
	11-20years	4	29%
	>20 years	2	14%

Table 3 explains the details of the demographic data. The CSSD technicians are categorized based on the demographic details as age in years, gender, and years of experience. There is total 14 respondents among them, 6 from 21-30years category and 8 from 31-40years category. Further 8 respondents are male technicians and 6 females. Also, among the 14 respondents, 8 respondents with 1-10 years of experience, 4 with 11-20 years of experience and 2 from above 20 years.

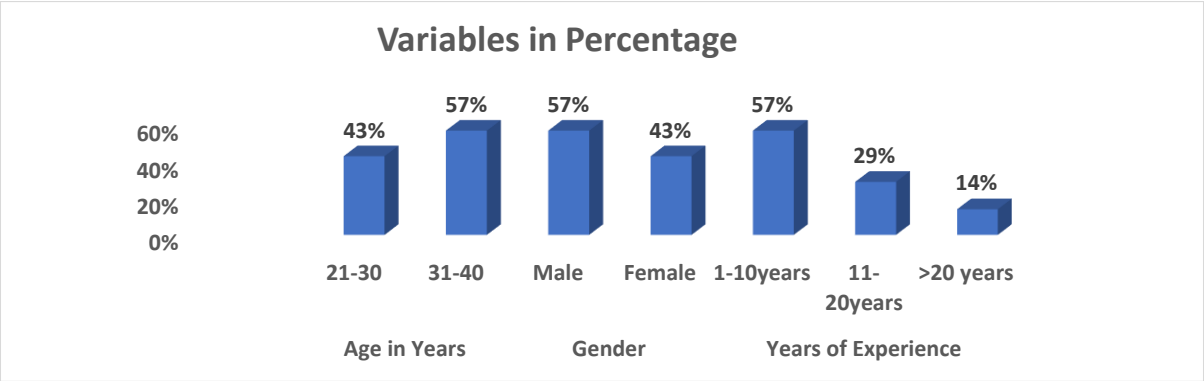

Figure:1Demographic variables in percentage

The figure 1 explains the demographic details in percentage. Among the 14 respondents, 57% were male technicians, from 31-40 years age group and with 1010 years of experience. 43% of the respondents are female from 21-30 years age groups divided into 29% from 11-20 years of experience and 14% with above 20years of experience. However, any of these demographic details had no significance (P value >0.05) to any of the competency mapping in the study.

Table4Technical or Functional Knowledge Competency analysis

SL.NO.	Factors describing the competency	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Standard Deviation
1	**Professionalism is required for CSSD technicians**	**43%**	**43%**	**7%**	**7%**	**0**	**4.21**	**0.89**
2	**Quality Assurance and control measures to be adapted in CSSD**	**43%**	**57%**	**0**	**0**	**0**	**4.43**	**0.51**
3	**Infection control measures to be necessarily followed in CSSD**	**57%**	**36%**	**7%**	**0**	**0**	**4.50**	**0.65**

4	**Awareness about hospital policies and laws**	**29%**	**71%**	**0**	**0**	**0**	**4.29**	**0.47**
5	**Seminars and training sessions are needed for CSSD technicians**	**50%**	**50%**	**0**	**0**	**0**	**4.50**	**0.52**
6	**Data entry skills to record results and entry required information into the computer system**	**43%**	**57%**	**0**	**0**	**0**	**4.43**	**0.51**
7	**The equipment handling and its maintenance issues to be correlated for better performance**	**36%**	**57%**	**0**	**0**	**0**	**4.29**	**0.61**

Table 4 explains the technical or functional knowledge competency analysis. There are7 factors that are assessed from the respondents during the informal interview with structured questions for technical or functional knowledge. 43% of the respondents agreed and strongly agreed to the factor that professionalism is required for CSSD technicians whereas 7% of them were neutral and disagreed to the same with a mean and SD of **4.21±0.89**. Quality Assurance andcontrol measures to beadapted in CSSDis felt from the respondents as to 57% agree and 43% strongly agree with a mean and SD of **4.43±0.51**. For the factor, infection control measures to be necessarily followed in CSSD, the 57% respondents strongly agree and 36% agreed whereas 7% were neutral with a mean and SD of **4.50±0.65**.71% agreed and 29% strongly agreed with the factor that awareness about hospital policies and laws is needed with a mean and SD of **4.29±0.47.** Seminars and training sessions are needed for CSSD technicians was strongly agreed and agreed by 50% with a mean and SD of **4.50±0.52.**57% agreed and 43% strongly agreed to that data entry skills to record results and entry required information into the computer system with a mean and SD **4.43±0.51**.The3equipment handling and its maintenance issues to be correlated for better performance is agreed by 57% respondents and 36% strongly agreed to the same with a mean and SD of **4.29±0.61.**

Table 5Managerial skillsCompetency analysis

Sl.No.	**Factors describing the competency**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**	**Mean**	**Standard Deviation**
1	**Customer satisfaction is important for the works performed in CSSD**	**50%**	**43%**	**7%**	**0%**	**0%**	**4.43**	**0.65**
2	**Ensure delivery of excellent customer service, fast and accurate**	**50%**	**50%**	**0**	**0**	**0**	**4.50**	**0.52**
3	**Support a variety of basic patient care activities and related procedures in caring for the needs of the patients and patient care providers**	**14%**	**64%**	**14%**	**7%**	**0%**	**3.86**	**0.77**
4	**Reviewed documents for correct signatures, relevancy, and chronological accuracy are needed**	**43%**	**57%**	**0**	**0**	**0**	**4.43**	**0.51**
5	**Review and record the dispatched items are needed**	**50%**	**50%**	**0**	**0**	**0**	**4.50**	**0.52**
6	**The cost and efficiency of the wrapping material to be analyzed by CSSD technicians and give their opinion to management for decision making**	**36%**	**64%**	**0**	**0**	**0**	**4.36**	**0.50**
7	**Must contribute to planning departmental budgeting**	**36%**	**57%**	**7%**	**0%**	**0%**	**4.29**	**0.61**

8	**Intra and inter departmental communication to be streamlined for better performance of the department**	**50%**	**43%**	**7%**	**0%**	**0%**	**4.43**	**0.65**
9	**Teamwork is needed in CSSD**	**71%**	**29%**	**0**	**0**	**0**	**4.71**	**0.47**
10	**Technicians should be made responsible for problem solving within the department**	**57%**	**43%**	**0**	**0**	**0**	**4.57**	**0.51**

Table 5 explains the managerial skills for competency analysis. There are 10 factors that are assessed from the respondents during the informal interview with structured questions for managerial skills. 50% of the respondents strongly agreed and 43% agreed to the factor that customer satisfaction is important for the works performed in CSSD whereas 7% of them were neutral to the same with a mean and SD of **4.43±0.65**. 50% strongly agreed and agreed to the factor that to ensure delivery of excellent customer service, fast and accurate was needed with a mean and SD of **4.50±0.52**. 64% agreed to the factor that support a variety of basic patient care activities and related procedures in caring for the needs of the patients and patient care providers whereas 14% are strongly agreed and neutral to the same with 7% disagreeing with a mean and SD of **3.86±0.77**. Among the respondents, 57% agreed and 43% strongly agreed to the factor that reviewing documents for correct signatures, relevancy, and chronological accuracy are needed with a mean and SD of **4.43±0.51.**50% of respondents strongly agreed and agreed that reviewing and recording the dispatched items are needed with a mean and SD of **4.50±0.52.**64% agree and 36% strongly agree that the cost and efficiency of the wrapping material to be analysed by CSSD technicians and give their opinion to management for decision making with a mean and SD of **4.36±0.50.**57% agree and 36% strongly agree with the factor must contribute to planning departmental budgeting whereas 7% are neutral with a mean and SD of **4.29±0.61.** 50% strongly agreed and 43% agreed with 7% being neutral with intra and inter departmental communication to be streamlined for better performance of the department with a mean and SD of **4.43±0.65.** 71% strongly agreed and 29% agreed that teamwork is needed in CSSD with a mean and SD of **4.71±0.47.**57% strongly agreed and 43% agreed that technicians should be made responsible for problem solving within the department with a mean and SD of **4.57±0.51.**

Table 6: Human Attributes competency analysis

Sl.No.	Factors describing the competency	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Standard Deviation
1	**Registered nursing staff assistance is required in CSSD**	**43%**	**43%**	**7%**	**7%**	**0%**	**4.21**	**0.89**
2	**Strong ethical values to be given importance in CSSD**	**43%**	**57%**	**0**	**0**	**0**	**4.43**	**0.51**
3	**Quick thinking and adaptability will help better functioning of CSSD**	**50%**	**50%**	**0%**	**0**	**0**	**4.50**	**0.52**
4	**Human empathy and friendliness are required for better work performance**	**36%**	**64%**	**0**	**0**	**0**	**4.36**	**0.50**
5	**With motivation responsibility will be taken up.**	**43%**	**50%**	**7%**	**0**	**0**	**4.36**	**0.63**

Table 6 explains the human attributes of the competency analysis. There are 5 factors that are assessed from the respondents during the informal interview with structured questions for the human attributes. 43% of the respondents agreed and strongly agreed to the factor that registered nursing staff assistance is required in CSSDwhereas 7% of them were neutral and disagreed to the same with a mean and SD of **4.21±0.89.** 57% agreed and 43% strongly agreed for strong ethical values to be given importance in CSSDwith a mean and SD of **4.43±0.51**. 50% respondents strongly agree and 50% agreed thatquick thinking and adaptability will help better functioning of CSSDwith a mean and SD of **4.50±0.52**.64% agreed and 36% strongly agreed with the factor human empathy and friendliness are required for better work performancewith a mean and SD of **4.36±0.50.** 43%strongly agreed and agreed by 50% that with motivation responsibility will be taken upwith a mean and SD of **4.36±0.63.**

Phase 2: In this phase, the calculation of the competency scores for the technical, managerial, and human attributes related competencies among the CSSD technicians are performed and the gaps identified in each level are addressed with appropriate skill-based training to all technicians for improvement. Further, the DMAIC Quality tool is applied and analysed.

The overall competency score is calculated applying the formula:

Competency Score = ($\bar{X}$ /No. of questions* Highest score) *100

Table 7: Overall Competency Score

CATEGORY OF COMPETENCY	OVERALL SCORE
Technical or Functional Knowledge	87.54%
Managerial skills	88.14%
Human Attributes	87.44%
Total overall competency score	**88%**

Table 6 explains the competency score of all the three categories of competencies with their scores leading to overall score. Technical or functional knowledge (87.54%), managerial skills (88.14%) and Human attributes (87.44%) of the CSSD technicians. Thus, overall competency score of CSSD technicians accounting to **88%**.

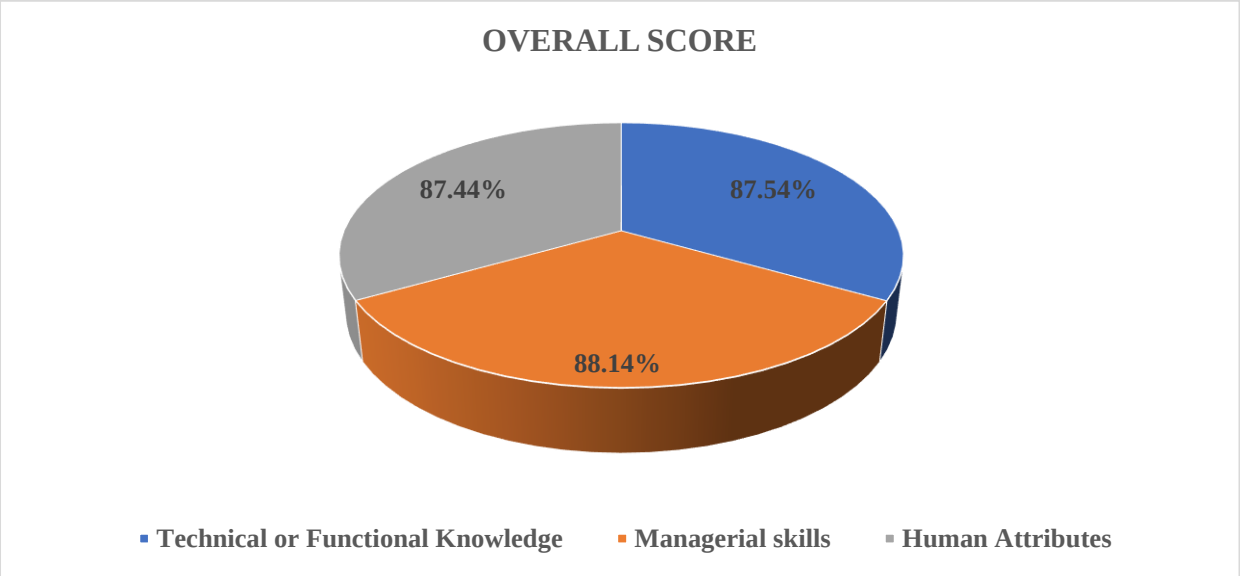

Figure 3 Category wise overall Competency Score

Figure 3 portrays the overall competency scores category wise of the CSSD technicians.
The calculated competency scores had to be scaled to find the gap between the existing and required levels of competencies among the CSSD technicians.

Table 8 Competency Rating scale.

Absence of knowledge	Level 1	10-25%
Has an exposure to the knowledge area but not practiced it.	Level 2	26-45%
Has an exposure to the knowledge area and practiced it with supervision.	Level 3	46-65%
Has an exposure to the knowledge area, practiced over a period, and is a perfectionist.	Level 4	66-85%
Excellence – master in the knowledge area and can Train others.	Level 5	86-100%

Table 8 explains the competency rating scale.[6] with various levels of competencies based on the competency score range. 10%-25% represents absence of knowledge, 26%-45% of has an exposure to the knowledge area but not practiced it, 46%-65% represents to has an exposure to the knowledge area, and practiced it with supervision, 66%-85% with has an exposure to the knowledge area, practised over a period, and is a perfectionist and finally 86%-100% has excellence-master in the knowledge area and can train others.

Thus, from figure 3 and table 6, the calculated competency scores of CSSD technicians proves that they all result in the Level 5 where it indicates that the CSSD technicians are with excellent competencies where they are masters in the knowledge and can train others. Therefore, the gaps identified is negligible which can be overcome with skill-based trainings to all the technicians in the CSSD.

QUALITY IMPROVEMENT TOOL APPLICATION TO THE COMPETENCY MAPPING GAP ANALYSIS PROCESS

The quality tool DMAIC (Define, Measure, Analyse, Improve and Control) [21] is applied for data driven improvement cycle to bring in an improvement, optimization, and stabilization in the competency mapping of the CSSD manpower management process.

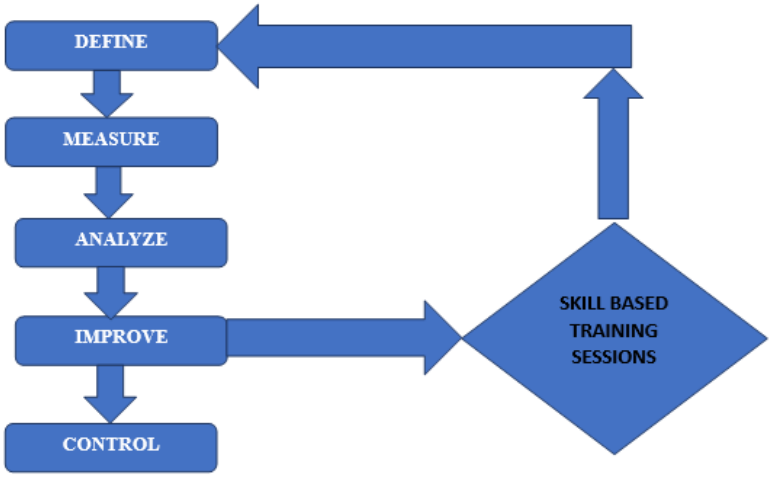

Figure4: DMAIC process for Competency mapping in CSSD

Figure 4 shows the DMAIC tool which can be explained as follows: [22]

Step 1: Define: In this phase, one gets all the information needed for the intended study. The competencies are classified under Technical or Functional Knowledge, Managerial Skills, and Human Attributes to include factors such as organizational awareness, technical skills and external awareness for technical/functional knowledge, customer oriented, planning skills and delegating and supporting organization- subordinates for coordination for managerial skills and good communication and teamworking and interpersonal effectiveness for human attributes among the CSSD technicians to be used to measure during the study.

Step 2: Measure: In this phase, the data needed for the study are collected as defined in the first stage using structured questions for informal interview method in phase 1 of the study.

Step 3: Analyse: In this phase, with the information gathered in the measure phase, the data are analysed using simple descriptive statistics i.e., frequency, percentage, mean and Standard deviation (SD) to find out the gaps in the various competency levels of the CSSD technicians also considering the demographic details such as age, gender, and work experience.Here the Phase 1 study finishes.

Step 4: Improve In this phase, the outcome from the analyse phase is interpreted in the form of competency score and the suggestions are taken up for improvement.

Step 5: Control: Once we found what works that gets no gaps, it is easy to stay in that mode of improvement by timely interventions in the work process. It is decided to have timely skill development training to not only to the CSSD technicians but extending and planning such similar training programs for all other categories of employees from various departments of the hospital.

VII. DISCUSSION

Competence mapping allows for the greater and more thorough extraction of what onelearns without subjecting to additional assessment tasks. Along with a design for a specific competency mapping tool, guidelines for building assessments that function better with competency mapping are also supplied.Competency is the capacity of a person to perform a task effectively.Competencymapping is a procedure for determining where a person's performance or job-related abilities are lacking so that those gaps can be filled through efficient training. The main goal to determine the differences in employee performance between. The secondary goal is to determine an employee's competency gap based on the 11 dimensions used for competency mapping at the Adecco Service Organization in Chennai. It has been determined that there are differences in the competency levels of Adecco personnel. The performance, meta-qualities, and job-related

skills of Adecco Organization employees are found to have greater competency gaps. These could be produced by providing employees with training that is explicitly focused on job-related skills and meta-qualities to enhance performance. [23] According to the reportconclusion, there is no universal benchmark for attaining competences and that it is subject to personal interpretation.An organization's or company's main competencies, as well as the roles and responsibilities within it, are identified through the process of competency mapping. The level of competence needed for a given job relies on a variety of variables. The variables could be cultural, business-related, environmental, organisational, work-related, and so forth. The environment and some of these characteristics may vary over time, changing the competency standards for the same job role inside the firm. Human resources, in contrast to other resources, are valued over time through education and experience. Competencies provide an organisation with the blueprint for ensuring that its human resources grow and bring value to the company.[24] Specific competency elements that have an impact on productivity, and a primary data gathering method was developed based on these factors. [25] The study's main goal was to determine which skills are most important for salespeople in the pharmaceutical sector and whether those skills influence how well a company operates. The survey found a total of eight competency groups that pharmaceutical sales professionals felt were important. The most important qualities were found to be technical skills, followed by personal skills, client orientation skills, time management skills, interpersonal skills, team player skills, commercial awareness skills, and presentation skills. The respondents thought the presentation competency category was the least important. The effectiveness of the organisation is impacted by all eight competency groups.Therefore, it can be stated that having technical, personal, client-oriented, time management, interpersonal, team player, commercial awareness, and presentation skills contributes to greater organisational success. There are six key factors that influence an organization's effectiveness. They are job participation, motivation, organisational commitment, attachment, creativity, and consensus. Even though there is a gap between the degree of competences that respondents now possess and those that are necessary, many of them fall within substantial competency groupings. In the pharmaceutical industry, competencies have a substantial impact on organisational effectiveness. Thus, it can be said that improving the organisational effectiveness depends on the sales staff's competencies. [26] Competency mapping is becoming more popular in the field of HR development and empowerment because knowledge is seen as a key to achieving competitive gains not only in the provision of services but also in the more traditional sectors of production of goods and industrial products. This is because of the intensive use of technology. A Competency Mapping and Measurement paradigm method makes it possible to learn more about the degree of suitability of the talents related to the various procedures.[27] An inference model based on fuzzy set theory known as the Sugeno fuzzy inference system is notable for handling MCDM (Multiple Criteria Decision Making) issues rather effectively. According to experimental findings, the suggested model is trustworthy and significantly outperforms the currently used forced distribution strategy.[28] Curriculums that are focused on competencies put an emphasis on how students apply their information and develop their competencies.The process of creating competency-based training is intricate and multi-step. However, in the context of the current, hectic NHS, it is possible to analyse it with a sizable programme of trainees. [29]Competencies are a group of those technical and behavioural skills and abilities that are necessary for the desired degree of performance. Superior performance is a result of having the right competencies. These days, the majority of commercial organisations are struggling with the issue of competency mapping, which is basically the match between a person's capacity for behaviour and the needs of the organisation or position.[30]

VIII. CONCLUSION

When competency mapping is put into practice, the emphasis is on the skills gaps that are necessary for the work at hand and can be filled through training. This research is very important to the employees and the organization because it gives each person a better understanding of the skills they have, the potential they have, and how others see them. It will also help the organization to improve its overall efficiency and effectiveness when applied to all categories of staff. The study can be concluded that the CSSD technicians are with excellent competencies where they are masters in the knowledge and can train others. Therefore, the gaps identified is negligible which can be overcome with skill-based trainings to all the technicians in the CSSD. Hence, the same study tools can be applied for other technicians in departments such as Radiology, operation theatre, anaesthesia, dialysis and improve their work competencies.

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