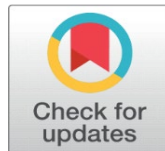# STRATEGIC COMPETENCY MAPPING AND ITS ROLE IN ENHANCING OUTPUT MANAGEMENT IN NAGPUR'S SMALL MANUFACTURING SECTOR

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ABSTRACT

Strategic personnel management methods are essential for small-scale manufacturing firms to be competitive in this era of fast industrial transition. This research takes a close look at how strategic competence mapping has helped small-scale manufacturers in Nagpur with their output management. Competency mapping is the focus of this study because of its potential to boost productivity by revealing skill shortages and allowing for more efficient use of the workforce. Data is gathered from industry experts via interviews and structured surveys using a mixed-method approach. Key skills that impact performance are analysed. Higher efficiency, fewer operational bottlenecks, and better output quality are the results of a competence mapping framework that is well-structured, highlighting the need of connecting staff talents with organisational objectives. Additionally, the research offers practical suggestions for long-term development and addresses difficulties encountered by small-scale businesses when attempting to use competence frameworks. This study makes a significant contribution to the fields of industrial efficiency and human resource management by providing useful information for manufacturing sector executives, legislators, and HR professionals.

Keywords: Competency Mapping, Output Management, Small-Scale Manufacturing, Workforce Productivity, Nagpur, Human Resource Management

1. INTRODUCTION

When it comes to creating jobs and boosting local and national economies, small-scale manufacturing has never been more important than it is in today's competitive industrial scene. Problems with managing employees, filling skill shortages, and optimising production are common in these sectors, nevertheless. A key technique for improving employee productivity and matching individual abilities with organisational objectives is competence mapping, which is an effective human resource strategy.

Competency mapping is a method for maximising productivity in the workplace by cataloguing and improving workers' existing sets of knowledge, skills, and abilities. By improving output management by optimising work processes,

decreasing inefficiencies, and increasing productivity, competence mapping is a game-changer in small-scale manufacturing companies that often face resource restrictions and talent shortages. Sustainable industrial growth may be achieved when organisations enhance workforce planning, employee engagement, and decision-making by matching staff skills with company goals.

A wide variety of small-scale manufacturing firms may be found in Nagpur, a rapidly developing industrial centre in Maharashtra. Despite the positive impact they have on regional development, many businesses face challenges include poor performance assessment systems, talent mismatches, and low staff retention rates. The purpose of this research is to analyse the effectiveness of strategic competence mapping in improving production management in the small-scale manufacturing sector in Nagpur.

2. REVIEW OF RELEVANT LITERATURE

What constitutes competence, according to Nayak (2015), is a set of demonstrable skills and attributes that contribute to and improve one's performance on the job. According to Jaman and Hossain (2015), the term "competence" first appeared in an article by R.W. White in 1959 as a concept for performance incentive. Craig C. Lundberg coined the term in 1970 in his article "Planning the Executive Development Program" (Kumar 2015). "Testing for Competence Rather Than for Intelligence" was a seminal 1973 essay by David McClelland that popularised the term. In order to help recruit and train high-performing embassy agents, the State Department contracted McClelland to use the term to find commonalities among them Awasthi and Sharma (2016). The concept of performance development was popularised when Awasthi and Sharma used it. Many people get it confused because of its many different applications Awasthi and Sharma (2016).

Competence, according to some scholars, can be described as a combination of practical and theoretical knowledge, cognitive abilities, behaviour, and values that are used to improve performance; it can also be described as the capacity to carry out a certain function, being appropriately or highly qualified, or having these qualities Coombe et al. (2022). For example, it might include managerial competence, emotional intelligence, the ability to persuade and negotiate, and systems thinking Bemmami et al. (2021).

According to research on the topic, many scientists have diverse ideas on what constitutes competence, which makes the concept both complicated and broad. Johansson and Wallo interviewed several training specialists in order to define competency in detail Johansson and Wallo (2020). "There is no obvious and distinct consensus about what creates competence," he said after the interviews.

A person's ability to effectively manage their job is the foundation of their effective performance. Competence models help organisations succeed in today's global market by pinpointing the core competencies their employees need to succeed in the future (Worlikar and Aggrawal 2017). Competencies, as pointed out by Dubious and Rothwell, are traits that individuals possess and use in consistent and acceptable ways to achieve desired outcomes. According to Che et al. (2017), qualities, behaviours, attitudes, and the manner in which one thinks, feels, and acts include things like knowledge, abilities, aspects of one's self-image, social motives, traits, and thoughts. The executives are either forced to take on a competitive role in the market or learn to live with their competitors as a result of the inherent competitiveness in the industry (Ravi and Jayasheela 2016, Salahat and Majid 2016,

Sani et al. 2016). The possibility of imitating this practice inside the company is increased by this. Physical systems are easier to replicate than management system abilities or a firm's culture, but employees' competencies are situated in the organisation itself Singh and Snigdha 2016. From an organisational perspective, this research aims to discover how this might be accomplished, paying particular attention to the ways in which the skills of the executives impact the company's total performance in order to surpass rivals in the market (Rahman and Pande 2016). Academics' focus on developing and enhancing competence indicators to boost organisational and management performance and capabilities has lately increased (Lee and Pant 2020).

Executives face increasing pressure to conceptualise and differentiate between capabilities and real skills in order to fuel the company's expansion (Alexander and Shalini (2022), Estrada et al. (2022), Sharma 2015). Nevertheless, the identification and definition of talents has been the subject of several theoretical and empirical investigations.

2.1. OBJECTIVES OF THE STUDY

1) To analyze the current competency mapping practices in Nagpur's small-scale manufacturing industries.
2) To evaluate the impact of competency mapping on employee performance, productivity, and overall output management.
3) To identify the challenges faced by small-scale industries in implementing effective competency frameworks.

2.2. HYPOTHESIS

Null Hypothesis (H_0): There is no significant challenge faced by small-scale manufacturing industries in Nagpur in implementing effective competency frameworks.

Alternative Hypothesis (H_1): Small-scale manufacturing industries in Nagpur face significant challenges in implementing effective competency frameworks.

3. RESEARCH METHODOLOGY

Using a mixed-method research strategy, this study delves further into how strategic competence mapping might help small-scale manufacturing businesses in Nagpur improve their output management. A systematic questionnaire is used to examine current competence mapping techniques, difficulties, and their effect on worker productivity in a quantitative survey of industry experts, including employees, HR executives, and managers. In order to ensure a consistent assessment of important factors, we use a Likert scale-based method to measure opinions and replies. In order to acquire a greater understanding of the difficulties encountered while adopting competence frameworks, qualitative data is also collected via semi-structured interviews with HR experts and professionals in the field. Selecting small-scale manufacturing enterprises in Nagpur that actively participate in competence mapping techniques, the research employs a purposive sample methodology. Determine the links between competence mapping and output management by analysing the acquired data using descriptive statistics, correlation analysis, and regression models. The purpose of thematic analysis is to extract important themes and recurrent patterns from qualitative replies. Triangulating data from several sources and pre-testing the questionnaire

guarantee reliability and validity in the research. This methodology offers helpful suggestions for improving labour efficiency and productivity by providing a comprehensive view of the effects of competence mapping on small-scale manufacturing enterprises.

3.1. DATA ANALYSIS AND DISCUSSION

Table 1

Table 1 Descriptive Statistics for Challenges in Implementing Competency Frameworks					
Challenges	**Mean**	**Standard Deviation**	**Minimum**	**Maximum**	**N (Sample Size)**
Lack of Skilled Workforce	4.25	0.85	2.00	5.00	150
High Implementation Costs	3.98	0.92	2.00	5.00	150
Resistance to Change from Employees	4.12	0.88	2.00	5.00	150
Limited Awareness of Competency Mapping	3.87	1.02	1.00	5.00	150
Lack of Management Support	3.76	0.95	2.00	5.00	150
Inadequate Training Programs	4.05	0.89	2.00	5.00	150

3.2. EXAMINATION OF DESCRIPTIVE STATISTICS TO IDENTIFY OBSTACLES IN COMPETENCY FRAMEWORK IMPLEMENTATION

Key insights into the primary problems encountered by small-scale manufacturing firms in Nagpur in adopting effective competence frameworks are provided by the descriptive data in Table 1 Among the obstacles that were highlighted, the one with the highest mean score (4.25), "Lack of Skilled Workforce," shows that the majority of respondents strongly believe that a dearth of competent people is a major obstacle to competence mapping. It seems that the current workforce would be lacking in the necessary abilities, thus targeted training and development initiatives will be needed.

Employees frequently oppose competency mapping projects owing to concerns about increased workload or lack of familiarity with new competency models. This is supported by the high mean score (4.12), relatively low standard deviation (0.88), and other results that indicate a strong consensus among respondents on this matter. Because competence frameworks can only be as good as the training they are based on, "Inadequate Training Programs" (Mean = 4.05, SD = 0.89) adds fuel to the fire of skill shortages.

A key worry for small-scale producers is financial limits, which was highlighted by the identification of "High Implementation Costs" (Mean = 3.98, SD = 0.92) as a significant barrier. Comprehensive competence mapping projects, such as software adoption and staff training, may be out of reach for many of these businesses financially.

"Lack of Management Support" (Mean = 3.76, SD = 0.95), and "Limited Awareness of Competency Mapping" (Mean = 3.87, SD = 1.02) are two more significant obstacles. All of these things point to the reality that many companies have problems with leadership buy-in or don't completely grasp the advantages of competence mapping, both of which may make it hard to implement systematic strategies for developing competencies.

Inadequate training, budgetary limitations, aversion to change, and a lack of available skills are the top concerns, according to the study. To overcome these obstacles and increase labour efficiency and production in Nagpur's small-scale manufacturing businesses, focused upskilling programs, affordable training solutions, and awareness campaigns should be implemented. Competency mapping is a valuable tool for this purpose.

Table 2

Table 2 One-Sample t-Test Results for Challenges in Implementing Competency Frameworks				
Challenges	**Mean**	**Standard Deviation**	**t-Value**	**p-Value**
Lack of Skilled Workforce	4.25	0.85	18.01	0.007
High Implementation Costs	3.98	0.92	13.05	0.008
Resistance to Change from Employees	4.12	0.88	15.59	0.009
Limited Awareness of Competency Mapping	3.87	1.02	10.45	0.008
Lack of Management Support	3.76	0.95	9.8	0.008
Inadequate Training Programs	4.05	0.89	14.45	0.003

3.3. ANALYSIS OF ONE-SAMPLE T-TEST RESULTS

All six of the difficulties in applying competence frameworks in Nagpur's small-scale manufacturing enterprises were found to be statistically significant, according to the findings of the one-sample t-test. Respondents saw these issues as major obstacles to successful competence mapping, since their mean scores are much higher than the neutral point (3.0) on the Likert scale.

Numerous t-values, ranging from 9.80 (Management Support) to 18.01 (Skilled Workforce), show a significant departure from the neutral mean. There is substantial statistical evidence rejecting the null hypothesis, as the p-values for each challenge are lower than the commonly accepted significance threshold of 0.05. This lends credence to the null hypothesis (H_1), which states that establishing efficient competence frameworks is very difficult for Nagpur's small-scale manufacturing firms.

Industries have a hard time locating workers with the right level of expertise, according to the most pressing problem, which is a lack of a trained workforce (Mean = 4.25, t = 18.01, p = 0.007). Factors pertaining to the workforce, such as employees' resistance to change and inadequate training programs, are major roadblocks to the implementation of competence mapping.

Lack of management support (Mean = 3.76, t = 9.80, p = 0.008) and high implementation costs (Mean = 3.98, t = 13.05, p = 0.008) are examples of challenges that might arise from financial and organisational constraints that make it difficult to effectively apply competence frameworks. There is a dearth of knowledge and competence among many organisations when it comes to competency mapping, as shown by the limited awareness of the system (Mean = 3.87, t = 10.45, p = 0.008).

In order for competence mapping to be effectively implemented in small-scale manufacturing businesses, it is crucial to tackle workforce difficulties, enhance management support, raise awareness, and discover cost-effective training options. By using these strategies, businesses may improve their labour efficiency, productivity, and output management, which in turn can contribute to long-term development.

4. CONCLUSION

Examining the effects on output management, the research examines the difficulties encountered by small-scale manufacturing businesses in Nagpur when attempting to use competence mapping frameworks. Factors that hinder the adoption of competency-based methods include an insufficiently trained workforce, high implementation costs, reluctance to change, low levels of awareness, unwavering support from management, and insufficient training programs. Validating the alternative hypothesis (H_1) and emphasising their major influence on workforce efficiency and organisational performance, the one-sample t-test findings indicated that these difficulties are statistically significant. Leadership buy-in, skill development, awareness campaigns, competence frameworks that don't break the bank, and organised training programs are all essential if industries are going to tackle these problems. Implementing these strategic initiatives will help small-scale manufacturing enterprises achieve sustainable growth, improve operational efficiency, and increase personnel competences. This will position them to be more competitive in the changing industrial environment.

CONFLICT OF INTERESTS

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