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SKILL GAP ANALYSIS AND ITS IMPACT ON PRODUCTIVITY AT CASTURN VALVES PRIVATE LIMITED IN CHENNAI

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Abstract: In the current era of rapid technological advancement and evolving job roles, organizations are increasingly confronted with the challenge of aligning employee competencies with business needs. Skill gap analysis has emerged as a vital strategic tool in identifying the mismatch between the skills employees possess and the skills required to perform their roles effectively. This paper explores the process of skill gap analysis, its methodologies, and the profound impact it has on organizational productivity. By assessing both individual and team capabilities against desired performance standards, skill gap analysis enables organizations to pinpoint specific areas requiring development. The findings of this study highlight that unaddressed skill gaps can lead to decreased efficiency, increased error rates, lower employee morale, and overall productivity decline. Conversely, organizations that actively conduct skill gap assessments and implement targeted training programs experience enhanced performance, better talent utilization, and improved business outcomes. Through real-world examples and evidence-based insights, this paper emphasizes the need for continuous skills evaluation and strategic workforce planning. It advocates for the integration of skill development into HR practices to foster a culture of learning and adaptability, ultimately driving long-term organizational success.

Keywords: Skill Gap Analysis, Workforce Development, Employee Competencies, Organizational Productivity, Training Programs, Talent Utilization, Strategic Workforce Planning.

I. INTRODUCTION

The valve manufacturing industry is a vital part of the global industrial landscape, enabling precise control of fluids across sectors such as oil and gas, power generation, water management, and pharmaceuticals. In India, this industry has experienced significant growth, propelled by industrialization, infrastructure development, and government initiatives like "Make in India." With rising demand for high-performance, efficient, and smart valve solutions, companies such as Casturn Valves Private Limited are playing a key role in delivering advanced, customized products that cater to evolving market needs.

COMPANY PROFILE

Casturn Valves Private Limited (CVPL), established in 1996 and based in Chennai, is a leading Indian manufacturer of knife gate valve components, offering products ranging from 2 to 36 inches. Certified with ISO 9001:2008 and CE marking, CVPL serves both domestic and international markets, including exports to Canada, Germany, Australia, and Poland. In FY 2023, the company saw a 126.38% profit increase despite a revenue decline, highlighting operational efficiency. Led by directors Venugopal Babu and Chandramohan Kirthana, CVPL continues to grow as a trusted name in precision valve manufacturing.

II. LITERATURE REVIEW

1) **Sharma, R. (2021)**
   SkillGap Analysis in Indian Manufacturing Sector A Strategic Perspective. Objective To identify prevailing skill gaps in the Indian manufacturing sector and evaluate how these affect operational efficiency and workforce productivity.

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2) **Kapoor, A., & Mehta, S. (2022)**
Workforce Skills Audit and Its Role in Enhancing Organizational Performance. Objective To explore the significance of conducting skills audits and how targeted training based on gap analysis contributes to better performance outcomes.

3) **Singh, P. (2020)**
Bridging the Skill Gap An HR Perspective. Objective To examine HR interventions in reducing skill mismatches and improving employee adaptability through continuous learning programs.

4) **Deloitte Insights (2019)**
The Future of Work Closing the Skills Gap.Objective To investigate trends in global talent shortages and recommend strategies for integrating skills development into long-term business planning.

OBJECTIVES:

- To study of Skill gap analysis and its impact on productivity
- Assess the current skill levels of employees and compare them with the required competencies for optimal job performance.
- Develop targeted training and development initiatives to bridge skill gaps and improve technical and managerial capabilities.
- Equip employees with the necessary skills to enhance productivity, reduce errors, and improve overall operational efficiency.

III. RESEARCH METHODOLOGY

This study employs a qualitative research approach, analyzing primary data through questionnaire method and secondary data from industry reports, financial statements, and academic literature on manufacturing efficiency and global trade practices. Case study analysis of Casturn Valves Private Limited (CVPL) is used to examine the impact of operational strategies and certifications on performance. Comparative insights are drawn from similar firms in the Indian valve manufacturing sector. The methodology emphasizes content analysis to identify patterns in profitability, export behavior, and management practices.

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ANALYSIS AND INTERPRETATION

CHI SQUARE:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.524[a]	15	.562
Likelihood Ratio	14.031	15	.523
Linear-by-Linear Association	.396	1	.529
N of Valid Cases	49		

a) Dependent Variable Designation, My current skill level allows me to complete my work on time and with minimal errors. Crosstabulation
b)21 cells (87.5%) have expected count less than 5. The minimum expected count is .16.

The Pearson Chi-Square test was conducted to examine the relationship between employees' designation and their perception that their current skill level allows them to complete work on time and with minimal errors. The results indicate that there is no statistically significant association between the two variables, as evidenced by a p-value of 0.562 (greater than the standard alpha level of 0.05). This suggests that across different job designations—whether employees, supervisors, team leaders, or HR staff—there is no notable difference in how individuals perceive the effectiveness of their skill levels on work performance.

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CORRELATION ANALYSIS

Correlations			
		How much does your current skill level contribute to your daily productivity?	I have the technical skills required to operate the machines or tools assigned to me.
How much does your current skill level contribute to your daily productivity?	Pearson Correlation	1	.021
	Sig. (2-tailed)		.885
	N	49	49
I have the technical skills required to operate the machines or tools assigned to me.	Pearson Correlation	.021	1
	Sig. (2-tailed)	.885	
	N	49	49

The correlation analysis examines the relationship between employees' current skill levels and their daily productivity, as well as their technical competency in operating assigned tools or machines. The Pearson correlation coefficient between the two variables is 0.021, which indicates a very weak positive correlation. Additionally, the significance value (p = 0.885) is far greater than the conventional threshold of 0.05, suggesting that the relationship is not statistically significant. This implies that having the technical skills required to operate machines or tools does not have a meaningful influence on how employees perceive their skill level contributing to daily productivity, based on this sample of 49 respondents.

REGRESSION ANALYSIS FINDING :

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.044[a]	.002	-.019	.3950
a. Predictors: (Constant), I have the technical skills required to operate the machines or tools assigned to me.				

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.014	1	.014	.091	.764[b]
	Residual	7.333	47	.156		
	Total	7.347	48			
a. Dependent Variable: Gender *						
b. Predictors: (Constant), I have the technical skills required to operate the machines or tools assigned to me.						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.218	.127		9.571	.000
	I have the technical skills required to operate the machines or tools assigned to me.	-.017	.058	-.044	-.302	.764
a. Dependent Variable: Gender *						

The regression analysis presented in the image investigates the relationship between technical skills and gender. The model summary shows a very weak correlation (R = 0.044) and an extremely low R Square value (0.002), indicating that only 0.2% of the variance in gender can be explained by technical skill levels. The adjusted R Square is negative (-0.019), which further suggests a poor model fit. The ANOVA table confirms the insignificance of the model with an F-value of 0.091 and a p-value of 0.764, far above the standard significance threshold of 0.05. Additionally, the coefficients table

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reveals that the predictor variable, "I have the technical skills required to operate the machines or tools assigned to me," has a standardized beta coefficient of 0.044 and a p-value of 0.764, again indicating no statistically significant effect on gender.

FINDINGS

- **Skill Impact on Productivity:** 83.7% of employees believe their current skill level positively contributes to their productivity, indicating confidence in their capabilities.
- **Need for Additional Skills:** 65.3% of respondents agree they require more skills or knowledge, highlighting a demand for continued training.
- **Work Efficiency:** 65.3% feel their current skills allow them to complete work on time with minimal errors, but 16.3% disagree, showing a gap in confidence for some employees.

RECOMMENDATIONS:

- Continuous skill development enhances employee confidence and productivity. Organizations should offer targeted training programs to keep employees updated and competent in evolving job roles.
- Conduct regular skill gap assessments through surveys or performance reviews to identify areas needing improvement and align training initiatives with actual needs.
- Promote a culture of learning and upskilling. Encourage employees to pursue certifications, attend workshops, or engage in cross-functional projects to broaden their competencies.
- Implement blended learning models that combine hands-on technical training, e-learning, and peer-to-peer mentoring to accommodate different learning styles.
- Ensure managers support learning initiatives by providing time and resources for skill enhancement. Manager-led encouragement increases participation in training programs.
- Create personalized development plans for employees, aligning their career goals with organizational objectives. This increases motivation and reduces skill mismatches.
- Monitor the effectiveness of training programs using performance metrics and employee feedback to continuously refine and improve learning initiatives.

IV. CONCLUSION

The study highlights the critical role of continuous skill development and targeted training in enhancing employee productivity and efficiency in the manufacturing sector. When employees are equipped with the right technical knowledge and feel confident in their abilities, they are more likely to perform tasks accurately and meet deadlines. The demand for hands-on and safety training indicates a strong preference for practical learning that aligns directly with daily job responsibilities. Regular updates on new processes and technologies, combined with opportunities to address skill gaps, contribute to a more agile and capable workforce. Additionally, fostering a culture of learning and providing diverse training options—including soft skills and lean practices—can lead to better collaboration and innovation. Ultimately, organizations that invest in strategic, employee-centered training approaches are more likely to see improvements in performance, engagement, and long-term operational success.

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