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# EXPLORING EMPLOYEE MOTIVATION AND BARRIERS IN TRANSITION TO INDUSTRY 4.0 TECHNOLOGY IN AGRO-SECTOR INDUSTRIES WITH REFERENCE TO BENGALURU

**Arpitha C[1], Dr. Leela M H[2]**

[1]*Fourth Semester, Dept of MBA, Dr. Ambedkar Institute of Technology, Bengaluru, VTU, Belagavi*
[2]*Assistant Professor, Dept of MBA, Dr. Ambedkar Institute of Technology, Bengaluru, VTU, Belagavi*

**ABSTRACT** DOI No: 10.36713/epra18573 Article DOI: https://doi.org/10.36713/epra18573

***The advent of Industry 4.0 technologies, such as Automation, Artificial Intelligence, Machine learning, Robotics and Internet of Things, is transforming agro-based sectors, improving productivity and operational efficiency. This study seeks to investigate the motivating factors that impact employees in agro-based industries when integrating Industry 4.0 technologies, as well as the challenges they encounter during this transformation. It indicates that intrinsic motivation, stemming from opportunities for creativity and independence, significantly influences employee engagement. Furthermore, the research emphasizes a significant lack of longitudinal studies focusing on the enduring impacts of technology adoption on employee motivation and retention. The findings highlight the significance of creating robust training initiatives and fostering an encouraging organizational environment to ease the shift towards Industry 4.0. This study enhances comprehension of how technological progress affects employee experiences in agro-based sectors, offering valuable insights for policymakers and industry leaders seeking to improve workforce readiness and motivation amidst digital transformation.***

**KEY WORDS:** ***Technological Advancement, Organizational Readiness, Employee motivation, Automation, Artificial Intelligence, Industry 4.0, Employee Challenges***

## INTRODUCTION

The utilization of Industry 4.0 technologies, such as automation, artificial intelligence, and the Internet of Things, is transforming agro-based industries. These technologies enhance effectiveness, efficiency, productivity, and environmental sustainability in agriculture. As many industries adopt Industry 4.0 technology, employees play a crucial role in implementing and adapting to these changes. The transition to Industry 4.0 presents challenges, particularly for employees responsible for implementing and managing these new technologies. This study examines the challenges employees encounter in adopting Industry 4.0 technology and the strategies industries implement to address these challenges. and examines factors affecting employee motivation during the transition to Industry 4.0.

## OBJECTIVES OF THE STUDY

- To determine the connection between worker motivation and productivity.
- To determine various challenges of employees in agro-based industry adopted Industry 4.0 technology.

## REVIEW OF LITERATURE

A study on the effects of Industry 4.0 on the agricultural technology workforce were examined, focusing on motivation and challenges, The focus of the training is to inspect how industry 4.0 tools are impacting the workforce dynamic in agro-based companies. Outcomes indicates that employees are more motivated when providing with openings for upskilling and career advancement, but face challenges when there are unclear transition plans (Patel, 2019). A study on the motivational factors influencing employees in agro-based firms aligning with Industry 4.0 principles, the study Focus on comprehending

employee motivation within the changing landscape of mechanization and Artificial Intelligence in the agricultural sector. The study highlights that employees are encouraged by the chance to enhance their skills and by rewards for improving their technological abilities (Nair and Subramanian 2021). A study on obstacles hindering the adoption of Industry 4.0 in agro-based industries in 2022, The focus of study is to identify the challenges faced by organizations and employees in implementing Industry 4.0 technologies in the agricultural sector. Common obstacles included skills gaps, anxieties about job injury from automation, and insufficient backing from management (Murphy 2022). A explored the obstacles related to staff members in the agriculture sector during the Industry 4.0 era. The task is to identify challenges related to human resources when transitioning to smart agriculture. Major obstacles consist of resistance to technological advancements, lack of drive for acquiring new skills, and concerns about job stability (Sharma and Bhandari 2022).

## RESEARCH GAP

The research gaps that have been identified, one notable area pertains to the insufficient number of studies addressing the long-term effects of upskilling on employee retention and productivity. There is a limited examination of the sector-specific obstacles related to the implementation of Industry 4.0 technologies across various agricultural subsectors. Furthermore, there is a lack of exploration into the psychological and social factors that contribute to employee resistance towards technological change. Research on the impact of automation on job design and workforce planning is insufficient. There is currently a gap in knowledge regarding the effects of Industry 4.0 on employee well-being and work-life balance within the agro-based industry.

## RESEARCH DESIGN

The study employs a descriptive research design to systematically analyse employee motivations and challenges in Bengaluru's agro-based industries during the transition to Industry 4.0 technologies. Data is collected through structured questionnaires and employee interviews, emphasizing firsthand insights. The research examines how technologies like automation, robotics, IoT, and AI affect the workforce, while recognizing limitations concerning small-scale enterprises and motivation drivers. It also analyses the impact of management support and training programs on employee readiness. Statistical tools, such as percentage analysis, ANOVA, correlation, and regression, are employed to extract meaningful insights from the data. The study aims to provide a comprehensive understanding of the dynamics involved in this technological shift.

## DATA ANALYSIS AND INTERPRETATION

**Hypothesis Testing for the Study**

**1. ANOVA test to check the significant difference between employee experience and productivity**

$H_0$: There is no significant difference between employee experience and productivity.

$H_1$: There is a significant difference between employee experience and productivity.

| ANOVA | | | | | |
|---|---|---|---|---|---|
| Total Years of Experience in Agro-Based Industry and Productivity | | | | | |
| | **Sum- of Squares** | df | **Mean -Square** | **f** | **Sig.** |
| Between groups | 1.738 | 4 | .434 | .749 | .562 |
| Within groups | 45.250 | 78 | .580 | | |
| Total | 46.988 | 82 | | | |

**Interpretation:** The output from SPSS, The F-value calculated is 0.749, and the associated p-value is 0.562. This p-value is significantly greater than 0.05, indicating that there is no statistically significant difference between the groups being compared. The result reveals that the null hypothesis is accepted. Hence, Alternative hypothesis is rejected.

**2. Regression test to check the significant relationship between employee experience and skill gap**

$H_0$: There-is statistically significant relationship between Employee experience and Skill gap.

$H_1$: There is a statistically significant relationship between Employee-experience and Skill gap.

| ANOVA | | | | | | |
|---|---|---|---|---|---|---|
| **Model** | | **Sum of - Squares** | **Df** | **Mean -Square** | **F** | **Sig.** |
| 1 | Regression | 27.269 | 1 | 27.269 | 5.110 | .026 |
| | Residual | 432.249 | 81 | 5.336 | | |
| | Total | 459.518 | 82 | | | |

**Interpretation:** The output from regression analysis yields significant results showing an F-value of 5.110 and a p-value of 0.026. This p-value is below the significance level of 0.05, indicating that the null hypothesis (H0) is rejected. Hence, alternative hypothesis is accepted. This suggests a significant relationship between employee experience and the skill gap.

**3. Regression test to check the significant relationship between training & support and Lack in implementing new technology**

$H_0$: There is- no significant relationship between training & support and lack in implementing new technology.

$H_1$: There is a -significant relationship between training & support and lack in implementing new technology.

| ANOVA | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | .866 | 1 | .866 | .355 | .553 |
| | Residual | 197.929 | 81 | 2.444 | | |
| | Total | 198.795 | 82 | | | |

**Interpretation:** The given results from SPSS suggesting that only 0.4% of the variance. The F-value of 0.355. The p-value associated with this F-value is 0.553, significantly greater than the significance level of 0.05. These results leads to accept the null hypothesis (H0), indicating that there is no significant relationship between training and support and the lack in implementing new technology.

## FINDINGS

- The F-value is 0.355, with a p-value of 0.553, which is significantly greater than the 0.05 threshold.
- The ANOVA results show a sum of squares for regression of 0.866 and a mean square of 0.866.
- The 0. 4% of the variance in the regression model indicates a weak relationship between training and support provided by an organization and lack of knowledge in implementing technology.
- The null hypothesis (H0) is accepted, indicating no statistically significant relationship between training and support and the lack of new technology implementation.

## SUGGESTIONS

- Investigate other potential factors such as organizational culture, employee resistance, or technological complexity that could hinder technology implementation.
- Conduct qualitative research, such as interviews or focus groups, to gain insights into the human and structural barriers within the organization.
- Enhance the scope of the analysis by including external factors like market trends, policy influences, or competitor practices that might affect technological adoption.
- Consider improving the training programs by aligning them more closely with the specific needs of technology adoption.

## CONCLUSION

The analysis reveals that training and support are not significant predictors of the lack of new technology implementation, as evidenced by the weak statistical relationship and high p-value. It is inferred that offering training alone may not be adequate in addressing the obstacles to the implementation of new technologies. Factors such as organizational culture, employee resistance, and other external variables may assume a more significant role. Future research should concentrate on identifying and resolving these supplementary obstacles in order to enhance the adoption process. A comprehensive approach that combines training, strategic support, change management, and technological readiness is advised to improve the efficacy of technology implementation in organizations.

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