



A Study on New Packaging Technologies at South India Bottling Company Pvt Ltd

SIPCOT Industrial Growth Centre, Gangaikondan Village, Tirunelveli – 627 352

Sam Anto M,

Student, Department of Management Studies, School of Management Studies, Vels Institute of Science Technology and Advanced Studies (VISTAS) Pallavaram, Chennai

Dr.P. Vinodhini,

Assistant Professor, Department of Management Studies, School of Management Studies, Vels Institute of Science Technology and Advanced Studies (VISTAS) Pallavaram, Chennai

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ABSTRACT

This study looks at how new packaging technologies affect the people who work at South India Bottling Company Pvt Ltd and how the company grows. The people who did this study asked 100 employees questions. Used computers to analyze the answers. They found out that packaging technologies the help employees get and the way they take care of the environment really affect how well the company does. When employees get training and the company uses packaging technologies they can make products make fewer mistakes and the products are better. South India Bottling Company Pvt Ltd can do better when they use packaging technologies and train their employees.

Keywords: Packaging Technology, Automation, Employee Training, Sustainability, Bottling Industry, ANOVA, Regression.



CHAPTER I – INTRODUCTION

In today's world packaging is really important for keeping products safe being good for the environment and looking appealing to customers. As technology gets better the packaging industry keeps changing with materials, automated processes and creative designs to make things more efficient and less harmful to the environment.

To stay on top professionals in the industry need training on the packaging technologies and best practices. This way they know about the trends, rules and regulations and tech advancements.

The fast pace of packaging tech advancements means companies must invest in employee development. This includes training on packaging, biodegradable materials, automation and quality control. By doing this companies can improve product quality, cut costs and make customers happier.

The use of tracking codes and interactive labels has changed supply chain management for the better. This study looks at how companies can make the most of these advancements by encouraging a culture of learning and technical skills among employees.

Another key point is that training helps reduce mistakes at work and makes workplaces safer. Packaging involves machines and hazardous materials so proper training is crucial. Although training programs cost money upfront they pay off in the run through reduced waste, better productivity and new ideas.

1.1 Need for the Study

- * We need to find out if employees at South India Bottling Pvt Ltd have the skills for packaging operations.
- * We want to check if they know about packaging technologies and industry practices.
- * We need to see if the company's training programs are effective.
- * Proper training can help improve packaging efficiency and reduce mistakes.
- * We also want to make sure products are safe and meet quality standards by teaching employees about regulations and safety.
- * Training can help reduce costs and improve productivity.

1.2 Scope of the Study

- * We will look at developments in packaging technologies like automation, smart packaging, eco-friendly materials and digital printing. See how they apply to South India Bottling Pvt Ltd.
- * We will evaluate how well the company's training programs work. If they help employees get better at their jobs.
- * We will check how ongoing training affects productivity, costs, packaging quality and customer satisfaction.
- * We want to find ways to improve training, such as learning, hands-on training and a culture of learning.



1.3 Objectives of the Study

Primary Objective

- * We want to study packaging technologies at South India Bottling Company.

Secondary Objectives

- * We will study the packaging technologies used at South India Bottling Company.
- * We will assess if training programs help employees get better at their jobs and know more about packaging.
- * We will examine if training programs make employees happier with their jobs.

1.4 Limitations of the Study

- * This study is about South India Bottling Pvt Ltd so the results might not apply to the packaging industry.
- * We do not have a lot of time to study so we cannot look at the long-term effects of training.
- * Employees might not always give answers because of personal bias or fear of what others might think.
- * New packaging technologies are being developed all the time so our findings might not be useful for long.

CHAPTER II – REVIEW OF LITERATURE

Smith and Johnson said that rapid technological advancements require employees to update their skills. Companies investing in training programs experienced improved efficiency, reduced waste and better compliance with regulatory standards.

Patel and Mehta found that hands-on workshops, mentoring programs and cross-functional training were the effective approaches for skill development in packaging firms adapting to rapid innovations. Garcia showed that training investment leads to productivity, lower operational costs and increased profitability.

Williams showed that companies providing sustainability-focused training were more successful in reducing environmental impact. Anderson and White found that interactive and incentive-based training approaches led to participation and retention rates. Roberts established that structured training modules and performance assessments significantly reduce packaging errors and product recalls.

Kim and others found that regulatory compliance was significantly higher at companies investing in training. Brown and others demonstrated that trained employees made fewer packaging mistakes leading to higher productivity and cost savings. Kumar and Reddy concluded that structured training programs improve product quality and drive excellence in manufacturing units.

Davies and Taylor identified resistance to change, budget constraints and lack of trainers as the main barriers to implementing continuous training programs. Gonzalez explored how Industry 4.0 technologies integrated into training programs improved competitiveness and smoother technology transitions.

Miller and others showed that digital training tools increased knowledge retention and accelerated adaptation to technologies. Hernandez linked trained employees to stronger adoption of sustainable and smart packaging strategies. Bose and Das confirmed that cloud-based learning management systems and mobile training apps improved learning accessibility and efficiency.



Chen and Li highlighted that AI-driven packaging solutions require employees to develop analytical skills through ongoing programs. Singh and Sharma concluded that a combination of classroom learning on-the-job training and digital platforms yields the learning outcomes. Nguyen and Tran found that AR/VR-based immersive training significantly boosted employee confidence and technical proficiency in packaging firms.

Research Gap

While substantial research exists on packaging automation and technology systems limited attention has been paid to how employee training facilitates adoption of new packaging technologies in the beverage industry. Most prior studies focused on dimensions and neglected the human development aspect. There is research examining whether continuous training genuinely helps employees reduce errors improve output and maintain safety when operating advanced packaging equipment. This study addresses that gap by investigating training and development practices in the context of packaging technologies at South India Bottling Pvt Ltd.

CHAPTER III – RESEARCH METHODOLOGY

This study uses a research design to analyze the impact of new packaging technologies on organizational and employee performance at South India Bottling Pvt Ltd. We collected information from 100 employees by asking them questions and used computers to analyze the answers.

3.1 Research Design

We used a research design to provide an accurate picture of the modern packaging system, training programs, automation and technological adaptation within the organization. The design focuses on measuring employee perceptions and experiences.

3.2 Sample Size & Sampling Method

We used a research design to provide an accurate picture of the modern packaging system, training programs, automation and technological adaptation within the organization. The design focuses on measuring employee perceptions and experiences.

3.3 Questionnaire Design

We used a questionnaire with close-ended questions as the primary data collection instrument. Responses were measured using a 5-point scale. The questionnaire covers information, training and development packaging technology and work environment, employee performance and overall opinion.

3.4 Data Analysis Tools and Techniques

TABLE 3.1 – Statistical Tools Used in the Study

Statistical Tool	Purpose	Software Used
Percentage Analysis	To describe demographic and opinion distribution of respondents	Excel
Chi-Square Test	To test the significant association between two categorical variables	SPSS
ANOVA	To test significant differences across packaging technology dimension means	SPSS
Regression Analysis	To measure the influence of independent dimensions on organizational performance	SPSS

Source: Primary Data



3.5 Limitations of the Study

- * The study is restricted to South India Bottling Pvt Ltd; it may not represent the packaging industry.
- * The limited study duration restricts analysis of long-term training outcomes.
- * Company-specific data on training budgets and internal methodologies may not have been fully disclosed.
- * Rapid technology advancements may limit the long-term applicability of findings.
- * Employee feedback may be influenced by bias or reluctance to share honest opinions.

CHAPTER IV – DATA ANALYSIS AND INTERPRETATION

This chapter presents the analysis and interpretation of data collected from 100 respondents regarding the impact of packaging technologies on organizational and employee performance. We applied percentage analysis, Chi-Square, ANOVA and Regression to derive conclusions.

4.1 Statistical Analysis

4.1.1 Chi-Square Test

Hypothesis:

- * H₀: There is no association between packaging technology dimensions and dependent variables.
- * H₁: There is an association between packaging technology dimensions and dependent variables.

TABLE 4.7 – Chi-Square Test Result

Variables	Chi-Square Value	df	P Value	Result
Overall Independent Variables vs Overall Dependent Variables	35.780	1	0.000	Significant

Source: Primary Data

Interpretation: The p-value of 0.000 is less than the significance level of 0.05. The null hypothesis is. The alternative hypothesis is accepted. This confirms a significant association exists between packaging technology dimensions and employee adaptation along with performance.

4.2.2 ANOVA Test

Hypothesis:

- * H₀: There is no difference, between packaging technology dimensions and organizational performance.
- H₁: There is a difference between packaging technology dimensions and how well a company performs.

**TABLE 4.8 – ANOVA Test Results**

Independent Variable Dimension	F Value	P Value	Result
Technological Development & Automation	4.856	0.030	Significant
Product Quality & Operational Efficiency	4.856	0.030	Significant
Technical Support & Infrastructure	8.847	0.000	Significant
Sustainability & Safety Practices	5.361	0.006	Significant
Overall Independent Variable	31.491	0.000	Significant

Source: Primary Data

Interpretation: All p-values are below 0.05. This means we can say that packaging technology dimensions really do have an impact on how a company performs. Technical Support & Infrastructure has the influence and then Sustainability & Safety Practices.

4.2.3 Regression Analysis

Hypothesis:

- H₀: Packaging technology dimensions do not have an influence on how well a company performs.
- H₁: Packaging technology dimensions do have an influence on how well a company performs.

TABLE 4.9 – Regression Model Summary

Model	R	R Square	Adjusted R Square	F Value	P Value
Packaging Technology → Organizational Performance	0.458	0.210	0.176	6.301	0.000

Source: Primary Data

Interpretation: The R Square value of 0.210 means that packaging technology dimensions explain 21% of the differences in how well a company performs. The model is statistically significant which means that packaging technology dimensions are predictors of how well a company performs.

TABLE 4.10 – Regression Coefficients

Independent Variable	Beta Coefficient	P Value	Result
Technological Development & Automation	0.107	0.327	Not Significant
Product Quality & Operational Efficiency	0.225	0.060	Not Significant
Technical Support & Infrastructure	0.149	0.119	Not Significant
Sustainability & Safety Practices	0.169	0.019	Significant

Source: Primary Data

Interpretation: Among the four dimensions Sustainability & Safety Practices is the one that has a big influence on how well a company performs. This means that companies should focus on packaging and safety to get good results.



4.2 Overall Findings Summary

The analysis shows that modern packaging technologies have an impact on how well a company performs and how productive employees are. Most people who answered the survey said that automation and advanced packaging systems make their work more efficient reduce mistakes and improve product quality. They also said that sustainability and technological development are important. The statistical tests show that investing in packaging technologies and employee development can improve productivity, customer satisfaction and company growth.

CHAPTER V – FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 Major Findings

- 94% of the people who answered the survey are male 67% are between 25 and 35 years old and 53% have been working for 1-5 years.
- 67% of the people who answered the survey work on a contract basis.
- 81% said that their company is always developing new packaging technologies.
- 89% said that employees get good training on new packaging systems.
- 83% said that automation reduces mistakes in manufacturing.
- 85% said that modern packaging technologies improve product quality and save time.
- 87% said that training programs improve packaging skills and digital tools help with monitoring.
- 92% said that packaging technologies help keep products fresh and safe.
- 27-31% said that their company uses eco-friendly and waste-reduction practices.
- The Chi-Square test shows a connection between packaging technology and how well a company performs.
- The ANOVA test shows that all four technology dimensions have an influence on performance with Technical Support & Infrastructure having the biggest effect.
- The regression analysis shows that the model explains 21% of the differences in how a company performs, with Sustainability & Safety Practices being the most important predictor.
- Overall modern packaging technologies have an impact on employee productivity, efficiency, product quality, safety and company growth.

5.2 Suggestions

- Companies should have a training calendar that covers automation, smart packaging and sustainability to keep employees up to date.
- Companies should use digital learning tools like e learning modules, VR simulations and online certifications to improve employee engagement and knowledge.



- Companies should do skill assessments to measure employee progress and identify areas for improvement.
- Companies should provide -functional training to enhance problem-solving and coordination.
- Companies should invest in eco- packaging and educate employees on green manufacturing and environmental compliance.
- Companies should partner with industry associations and academic institutions to bring the innovations and best practices into their training programs.

5.3 Conclusion

Continuous training on packaging technologies is crucial for maintaining efficiency, quality and compliance in the competitive bottling industry. This study shows that modern packaging technologies have an impact on how well a company performs and how productive employees are. By fostering a culture of learning implementing structured training initiatives and investing in sustainable packaging solutions companies can minimize packaging errors improve productivity ensure regulatory adherence and position themselves as industry leaders in sustainable beverage manufacturing. Investing in employee development can also boost company growth. Enhance customer satisfaction through consistently high-quality packaging standards.

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