

Employee Manpower Management and Its Impact on Product Quality: A Study of Amcor Flexibles India Private Limited, Puducherry

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ABSTRACT

Flexible packaging manufacturing depends as much on disciplined workforce execution as on machinery, since even a minor lapse in staffing, training or supervision can compromise product quality. This study examines the impact of employee manpower management on perceived product quality at Amcor Flexibles India Private Limited, Puducherry, a flexible packaging manufacturer running a continuous four-shift production system. A structured questionnaire covering training, supervisory support, manpower adequacy, shift scheduling, HR communication and employee welfare was administered to 54 employees through convenience sampling and analysed using percentage analysis, mean score ranking, cross-tabulation, Cronbach's Alpha, an independent-samples t-Test, one-way ANOVA and a Chi-square test.

All eleven opinion statements recorded combined Agree/Strongly Agree levels above 87%, and the eleven-item scale returned a Cronbach's Alpha of 0.783, indicating acceptable reliability. Permanent employees reported significantly higher HR Practice Adequacy and Overall HR Perception scores than contract employees ($t = 2.318$, $p = 0.024$; $t = 2.388$, $p = 0.021$), and HR Practice Adequacy differed significantly across years-of-experience bands ($F = 3.096$, $p = 0.035$). The study concludes that employee manpower management is strongly and consistently associated with perceived product quality at the Puducherry plant.

Keywords: Manpower Management, Product Quality, Human Resource Management, Flexible Packaging, Employee Perception, Amcor Flexibles.

INTRODUCTION

A country's economic strength leans heavily on the manufacturing it creates, and within that space flexible packaging has grown rapidly, pushed along by rising demand from food, beverage, pharmaceutical and personal-care brands. Packaging is no longer just

something a product sits inside; it extends shelf life, protects the consumer, and shapes how a brand comes across on a retail shelf.

Even the best machinery is only as good as the people running it. Manpower planning, training, supervision and shift allocation decide daily output and quality in high-precision manufacturing. Amcor Flexibles India Private Limited, Puducherry, a subsidiary of Amcor plc, runs continuously on a four-shift rotation with a workforce of approximately 600 employees, combining 250 permanent staff with roughly 300 contract workers.

Production moves through an interdependent sequence — printing, curing, lamination, slitting, seaming and pouching — where a lapse at any stage propagates downstream almost immediately. The curing stage is particularly sensitive: adhesive bonds require a strictly observed window of 24 to 72 hours to cross-link, and cutting this short causes delamination and seal failure. This makes workforce practices directly consequential for product quality, forming the basis of this study.

This paper deals with “Employee Manpower Management and its Impact on Product Quality” at the Puducherry plant, evaluating how training, supervision, manpower adequacy, shift scheduling, communication and welfare are perceived to link to work quality.

REVIEW OF LITERATURE

Vohra, Patwardhan and Upadhyay (2025) examined how HRM practices affect organisational effectiveness in the Indian manufacturing sector using survey data from 467 professionals, finding that recruitment, training, appraisal, compensation and employee participation all significantly improved effectiveness through employee performance and job satisfaction.

Ammirato, Felicetti, Linzalone, Corvello and Kumar (2023) reviewed HRM in the context of Industry 4.0, concluding that human capital remains the most important organisational asset even as factories

automate further. Muisyo, Qin, Ho and Julius (2022) found that structured HR practices measurably strengthened operational and competitive performance in manufacturing firms.

Arokiasamy, Fujikawa, Piaralal and Arumugam (2023) found consistent, positive associations between structured HR practices — including training and employee involvement — and measured performance outcomes. Kiran, Shanmugam, Raju and Kanagasabapathy (2022) similarly found that organisations which actively analyse workforce data saw stronger performance outcomes.

RESEARCH METHODOLOGY

The study follows a descriptive, quantitative design, aiming to describe and analyse employees' perceptions of manpower management practices and their relationship to product quality at the Puducherry plant.

Sample and Sampling Technique

There was a sample size of 54 respondents drawn from permanent staff (38, 70.4%) and contract operators (16, 29.6%). The method used in selecting respondents was convenience sampling, based on shift availability and willingness to participate.

Data Collection

Both primary and secondary data were used. Primary data were collected through a structured questionnaire distributed via Google Forms, covering demographic profile and eleven opinion statements on training, supervisory support, manpower adequacy, shift scheduling, HR communication and welfare, rated on a five-point Likert scale. Secondary data came from company documentation and academic literature.

Statistical Tools Used

The gathered data was analysed using percentage analysis, mean score ranking, cross-tabulation, Cronbach's Alpha, an independent-samples t-Test, one-way ANOVA, and a Chi-square test.

DATA ANALYSIS AND INTERPRETATION

The research was carried out among 54 respondents of whom 70.4% were permanent and 29.6% were contract staff, fairly balanced by gender (48.1% male, 42.6% female) and skewed younger, with 42.6% aged 18–25.

All eleven opinion statements recorded strongly favourable agreement, with combined Agree/Strongly Agree levels above 87% throughout (93.2% overall,

under 1% disagreement). “There is enough manpower to complete work effectively” and “Proper training helps reduce work errors” were the highest-scoring statements (4.57 each), while the broad statement on HR's overall effect scored lowest, though still positive (4.35).

The reliability test produced a Cronbach's Alpha of 0.783 for the overall scale and 0.806 for the HR Practice Adequacy sub-scale, both indicating acceptable internal consistency.

Permanent employees rated pre-work training more favourably than contract staff (60.5% versus 43.8% Strongly Agree). An independent-samples t-Test confirmed permanent employees scored significantly higher on HR Practice Adequacy ($t = 2.318$, $p = 0.024$) and Overall HR Perception ($t = 2.388$, $p = 0.021$).

A one-way ANOVA showed HR Practice Adequacy differed significantly across experience bands ($F = 3.096$, $p = 0.035$), with employees of more than six years' tenure rating practices most favourably. A Chi-square test on employment type and overall opinion approached but did not reach significance ($\chi^2 = 5.656$, $p = 0.059$), likely due to the small contract sample.

In conclusion, employee manpower management shows a strong, statistically supported association with perceived product quality at the Puducherry plant, with manpower adequacy and training standing out as the most positively rated practices.

FINDINGS

- ✓ 92.6% of respondents agreed there is enough manpower to complete work effectively, and 96.3% agreed adequate manpower improves quality of work.
- ✓ 94.5% agreed they received adequate training before starting their job, and 98.2% agreed proper training helps reduce work errors.
- ✓ Supervisory support and clarity of guidance both scored strongly (87.0% each), drawing the small pocket of disagreement present in the dataset.
- ✓ 92.6% agreed shift schedules are managed properly and HR-employee communication works well; 94.5% agreed welfare activities improve motivation.
- ✓ Permanent employees scored significantly higher than contract employees on HR Practice Adequacy and Overall HR Perception (t-Test, $p < 0.05$).

- ✓ HR Practice Adequacy differed significantly across years-of-experience bands (ANOVA, $F = 3.096$, $p = 0.035$).
- ✓ The questionnaire showed acceptable reliability, with an overall Cronbach's Alpha of 0.783.

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SUGGESTIONS

- ✓ Standardise training modules so every operator, permanent or contract, follows a documented onboarding schedule.
- ✓ Introduce regular refresher courses around the curing and lamination stages.
- ✓ Formalise the HR-production feedback loop on a fixed weekly or bi-weekly cadence.
- ✓ Establish an anonymous feedback channel, particularly valuable for contract staff.
- ✓ Use existing attendance data more actively for predictive staffing models.
- ✓ Cross-train operators across adjacent lines to increase flexibility during shift absences.

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