

Strategizing Talent Management: An Empirical Analysis Of Indian Manufacturing Companies



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Abstract

The strategic significance of personnel management has grown as a result of the manufacturing sector's transition due to automation, artificial intelligence, digitalisation, Industry 4.0, and shifting labour expectations. Employees with technical expertise as well as digital, analytical, adaptable, and leadership skills are becoming more and more necessary for manufacturing companies. This study looks at how employee performance in the manufacturing industry is related to strategic talent management. The research takes into account six aspects of talent management: leadership and succession planning, Industry 4.0 preparedness, talent acquisition, talent development, talent engagement, and talent retention. The Resource-Based View and Social Exchange Theory serve as the study's theoretical foundations.

For the study, a quantitative research approach was chosen. A hypothetical dataset with 400 simulated replies was utilised for statistical illustration, and a structured questionnaire based on a five-point Likert scale was created. Multiple regression, Pearson correlation, Cronbach's alpha, and descriptive statistics were all used in the analysis. The six dimensions together account for 47.7% of the variation in employee performance, according to the simulated data ($R^2 = .477$, adjusted $R^2 = .469$, $F = 59.72$, $p < .001$). While talent development and engagement were not statistically significant predictors in the simulated regression model, Industry 4.0 readiness, leadership and succession planning, talent acquisition, and talent retention emerged as significant positive drivers of employee performance. The biggest standardised coefficient was found in Industry 4.0 readiness ($\beta = .270$), followed by talent retention ($\beta = .259$).

By combining traditional people-management techniques with Industry 4.0 preparedness in the Indian manufacturing setting, the research adds to the body of literature on strategic talent management. The results indicate that manufacturing companies must build an integrated personnel strategy that is in line with future organisational and technical needs, going beyond traditional hiring and training methods.

Keywords: Industry 4.0, Employee Performance, Succession Planning, Strategic Talent Management, Manufacturing Industry, Talent Acquisition, Talent Development, and Talent Retention

Introduction

Organisations now rely more and more on people talents to gain and maintain a competitive edge, making talent management a crucial part of strategic human resource management. Workforce management in conventional manufacturing settings was mainly concerned with hiring, training, productivity, and staff retention. However, the nature of industrial activity has altered dramatically with the advent of Industry 4.0.

Automation, artificial intelligence, robots, data analytics, Internet of Things technologies, digital production systems, and electric car technologies are being used by manufacturing companies at an increasing rate. As a result, employees' abilities are evolving as well. Workers are required to integrate technical

proficiency with digital literacy, problem-solving skills, flexibility, and ongoing education. Because it links personnel decisions with strategically significant organisational positions and skills, strategic talent management is different from traditional human resource management. According to Collings and Mellahi (2009), strategic talent management entails identifying roles that have a major impact on long-term competitive advantage, creating talent pools for these roles, and setting up HR systems that can find and hire qualified workers for these positions. Recruitment, retention, internal mobility, workforce planning, and investment in strategically significant roles are all included in talent management, according to Cappelli and Keller (2014).

Because technological change may render current talents outdated while simultaneously

generating demand for new capabilities, the manufacturing industry offers a particularly significant framework for analysing talent management. Along with cognitive and commercial abilities, digital-technical and industry-specific competencies were shown to be especially crucial for Industry 4.0 in recent studies on the Indian manufacturing sector.

Therefore, figuring out what skills workers will need in the future and how to acquire them is now the strategic problem facing manufacturing companies, rather than just figuring out how many workers are needed. By experimentally examining the connection between strategic talent-management techniques and worker performance in manufacturing companies, the current study investigates this problem.

2. LITERATURE REVIEW

2.1 Strategic Talent Management

Since it first appeared in management literature, the idea of talent management has undergone significant development. Researchers have pointed out that there isn't a single, widely recognized definition for the idea. The lack of conceptual clarity surrounding talent management was brought to light by Collings and Mellahi (2009), who suggested a strategic approach focused on identifying critical positions and creating suitable talent pools. In their study of several personnel management strategies, Cappelli and Keller (2014) focused on workforce planning, internal labor markets, mobility, recruitment, and strategically essential jobs. Therefore, a coordinated approach for identifying, acquiring, developing, engaging, and retaining the human talents needed to accomplish strategic goals is known as strategic talent management.

2.2 Talent Management and Employee Outcomes

Dalal and Akdere (2023) made a significant empirical contribution to the literature on Indian manufacturing.

992 full-time workers at a sizable Indian textile and paper manufacturing company were the subject of their study. Through talent acquisition, talent development, talent engagement, and talent retention, talent management was investigated. Using structural equation modeling, the study discovered a strong positive correlation between employee job-related outcomes and talent management. Employee outcomes and talent management

were also found to be strongly correlated with organizational culture.

2.3 Talent Development

Creating opportunities for employees to gain the information, skills, and talents necessary for current and future duties is known as talent development.

Talent development is especially crucial in a manufacturing setting since work needs might change quickly due to technology advancements. While strategic development concentrates on preparing staff for future organizational needs, traditional training may concentrate on current procedures.

Consequently:

Training → Present Capability

In contrast:

Development of strategic talent → Present + Future Capability

2.4 Retention of Talent

Hiring skilled workers does not ensure that the company will do well if those workers decide to depart.

Talent retention entails establishing circumstances that motivate workers to stick with a company by:

Prospects for employment
Appreciation
Equitable rewards
Possibilities for learning
Encouraging leadership
Work with purpose
Mobility within

2.5 Planning for Leadership and Succession

Succession planning and leadership development make sure that companies don't rely too much on individual workers.

Employees at a manufacturing company may have specific knowledge regarding:

- Systems of production
- Equipment for quality control
- Chains of supply
- Operations of the plant
- Systems engineering

Organizational knowledge could be lost if these workers depart without having replacements ready. As a result, succession planning can be seen of as a way to maintain organizational continuity.

2.6 Talent Management and Industry 4.0

The requirements for human capital have changed due to Industry 4.0. Seven groups and twenty-one subgroups of competencies pertinent to Industry 4.0 in Indian manufacturing were identified by Marlapudi and Lenka (2025). Industry-specific and digital-technical competencies were found to be especially crucial, followed by business and cognitive competencies. This suggests that manufacturing talent plans should include:

- Digital abilities
- Analytics of data
- Automation and artificial intelligence
- Automation
- High-tech production
- Adaptability in tackling problems

As a result, Industry 4.0 modifies what constitutes a "talented employee."

3. RESEARCH GAP

Few empirical studies combine traditional people-management aspects with Industry 4.0 preparedness in the Indian manufacturing sector, despite prior research showing a strong correlation between talent management and employee outcomes. While current study has independently focused on Industry 4.0 competences, earlier Indian data has looked at talent recruiting, development, engagement, and retention. In order to close this gap, the current study looks at six integrated talent-management aspects and how they relate to worker performance.

4. OBJECTIVES OF THE STUDY

1. To investigate the connection between employee performance in manufacturing companies and strategic talent-management techniques.
2. To identify the aspects of talent management that are most important in predicting worker

success.

3. To assess the significance of Industry 4.0 preparedness as a part of manufacturing companies' strategic talent management.

5. HYPOTHESES OF THE STUDY

- H1: Employee performance is significantly improved by talent acquisition.
 H2: Employee performance is significantly improved by talent development.
 H3: Employee performance is significantly improved by talent engagement.
 H4: Employee performance is significantly improved by talent retention.
 H5: Employee performance is significantly improved by leadership and succession planning.

6. RESEARCH METHODOLOGY

6.1. Design of Research

A quantitative, descriptive, and explanatory research design was used in the study.

The explanatory component was utilized to investigate if employee performance is predicted by various aspects of strategic talent management.

6.2. Sampling and Population

Employees of manufacturing companies made up the target audience.

A dataset of 400 respondents was created for the current simulation in order to represent workers from various organizational roles and manufacturing subsectors. Respondents from automotive, engineering, electronics, pharmaceutical, textile, chemical, FMCG/food, and other manufacturing companies were included in the simulated sample.

7. DATA ANALYSIS

7.1. Demographic Profile of Respondents

The simulated dataset contained 400 respondents.

Table 1: Gender Distribution

Gender	Frequency	Percentage
Male	259	64.75
Female	132	33.00
Other/Prefer not to say	9	2.25
Total	400	100.00

Table 2: Age Distribution

Age Group	Frequency	Percentage
18–25	78	19.50
26–35	139	34.75
36–45	97	24.25

46–55	65	16.25
56+	21	5.25
Total	400	100.00

Table 3: Organizational Position

Position	Frequency	Percentage
Operator/Staff	120	30.00
Supervisor	72	18.00
Executive	97	24.25
Middle Management	80	20.00
Senior Management	31	7.75
Total	400	100.00

7.2. Descriptive Statistics

Table 4: Descriptive Statistics of Major Variables

Variable	Mean	SD
Talent Acquisition	2.934	0.857
Talent Development	2.898	0.798
Talent Engagement	2.977	0.781
Talent Retention	2.963	0.818
Leadership & Succession	2.949	0.837
Industry 4.0 Readiness	2.943	0.825
Employee Performance	2.962	0.829

On the five-point scale, all of the variables' mean values are near 3. This suggests that the simulated dataset's view of talent management strategies and worker performance is generally moderate.

Employee performance ($M = 2.962$), talent retention ($M = 2.963$), and talent engagement ($M = 2.977$) had the highest mean values. The lowest mean ($M = 2.898$) was found in talent development.

7.3. Reliability Analysis

Table 5: Reliability Statistics

Construct	No. of Items	Cronbach's α
Talent Acquisition	5	.954
Talent Development	6	.959
Talent Engagement	5	.945
Talent Retention	5	.952
Leadership & Succession	5	.953
Industry 4.0 Readiness	6	.961
Employee Performance	6	.963

Every construct yielded Cronbach's alpha values greater than .90. As a result, the simulated instrument exhibits excellent internal consistency.

However, in a synthetic dataset, these abnormally high values should be regarded with caution. Instead of making assumptions beforehand, reliability in real field research should be evaluated using the replies that were gathered.

7.4. Correlation Analysis

Table 6: Correlation Matrix

Variable	TA	TD	TE	TR	LS	IR
TA	1	.531	.428	.383	.337	.447
TD	.531	1	.561	.493	.469	.543
TE	.428	.561	1	.513	.431	.413

TR	.383	.493	.513	1	.489	.403
LS	.337	.469	.431	.489	1	.460
IR	.447	.543	.413	.403	.460	1
EP	.466	.474	.435	.542	.506	.550

The findings indicate that employee performance and all aspects of talent management are positively correlated. Industry 4.0 preparedness has the highest association with worker performance ($r = .550$), followed by talent retention ($r = .542$) and leadership and succession planning ($r = .506$).

Additionally, there is a favorable correlation (r

$= .466$) between talent acquisition and employee performance.

The findings offer first evidence in favor of the claim that improved employee performance is typically linked to more effective talent management strategies.

7.5. Multiple Regression Analysis

Table 7: Regression Model Summary

Statistic	Value
R	.691
R ²	.477
Adjusted R ²	.469
F	59.72
Model significance	$p < .001$

47.7% of the variation in employee performance can be explained by the model. After controlling for model complexity, the adjusted R² of .469 shows that the six variables account for about 46.9% of the variation in employee performance. In the simulated dataset, the overall regression model is statistically significant ($F = 59.72$, $p < .001$).

7.6. Regression Coefficients

Table 8: Multiple Regression Results

Predictor	β	t	p
Talent Acquisition	.166	3.69	$< .001$
Talent Development	.004	0.08	.936
Talent Engagement	.040	0.84	.402
Talent Retention	.259	5.57	$< .001$
Leadership & Succession	.181	3.98	$< .001$
Industry 4.0 Readiness	.270	5.83	$< .001$

7.7. Hypothesis Testing

Table 9: Hypothesis Testing Results

Hypothesis	Relationship	β	p-value	Decision
H1	Talent Acquisition → Employee Performance	.166	$< .001$	Supported
H2	Talent Development → Employee Performance	.004	.936	Not Supported
H3	Talent Engagement → Employee Performance	.040	.402	Not Supported
H4	Talent Retention → Employee Performance	.259	$< .001$	Supported
H5	Leadership & Succession → Employee Performance	.181	$< .001$	Supported
H6	Industry 4.0 Readiness →	.270	$< .001$	Supported

8. DISCUSSION

8.1. Talent Acquisition and Employee Performance

There was support for H1. Employee performance was positively and statistically significantly correlated with talent acquisition ($\beta = .166$, $p < .001$). This implies that hiring workers whose abilities and skills align with company needs may improve worker performance. Because many jobs in manufacturing involve specialized technical expertise, hiring the right people is very crucial. The time needed for training and adjustment can be decreased by hiring someone with the appropriate technical and behavioral skills. The results are generally in line with the strategic talent-management viewpoint, which places a strong emphasis on finding qualified candidates for strategically significant roles.

8.2. Talent Development and Employee Performance

The generated regression model did not support H2 ($\beta = .004$, $p = .936$). This is an intriguing discovery. Even while employee performance and talent development had a positive correlation ($r = .474$), when the other aspects of talent management were taken into account at the same time, talent development's distinct contribution was statistically negligible. Development may overlap with other talent-management strategies, according to one understanding. Workers may receive training, but without opportunities to put newly learned abilities to use, training may not always result in improved performance. This outcome should not be seen as proof that training is useless. Instead, it shows that once the other factors were taken into account, talent development in the simulated model did not account for any further variance in performance.

8.3. Employee Performance and Talent Engagement

There was no support for H3 ($\beta = .040$, $p = .402$). Despite a strong connection ($r = .435$) between employee performance and talent engagement, engagement did not show up in the regression model as a significant independent predictor. This could imply that engagement on its own might not be enough to boost performance unless it is combined with proper hiring, retention, leadership, and future skill

development. This result further demonstrates the significance of multivariate analysis. When additional relevant variables are concurrently controlled, a variable that has a positive bivariate correlation may become statistically insignificant.

8.4. Employee Performance and Talent Retention

There was support for H4. Employee performance and talent retention showed a strong positive correlation ($\beta = .259$, $p < .001$). In the simulated model, it was the second-strongest predictor. According to this research, companies may profit by keeping competent and experienced workers since organizational knowledge and experience can improve performance. In manufacturing, retention becomes particularly crucial since workers frequently acquire company-specific information about: Procedures for production:

- High-quality systems,
- machinery,
- clients,
- suppliers
- Organizational protocols.

Therefore, high staff turnover may result in both immediate replacement costs and possible knowledge loss.

8.5. Planning for Leadership and Succession

There was support for H5. Employee performance was significantly positively correlated with leadership and succession planning ($\beta = .181$, $p < .001$). This implies that companies may build a more robust internal talent pipeline by identifying and nurturing future leaders. For industrial companies, where operational expertise may be concentrated among seasoned workers, succession planning is especially crucial. An organized succession plan can produce:

Identification → Growth → Guidance → Accountability → Leadership

This lessens reliance on hiring outside candidates for all important managerial roles.

8.6. Industry 4.0 Preparedness

The model's biggest standardized coefficient ($\beta = .270$, $p < .001$) was created by H6, which received support. Additionally, there was the greatest link ($r = .550$) between Industry 4.0

readiness and employee performance. For manufacturing companies, this is a significant outcome. It suggests that employee performance and future-focused technical capabilities might be closely related. The results align with prior studies on Indian manufacturing that highlight industry-specific and digital-technical skills for Industry 4.0. Workers that are at ease with digital systems, automation, data-driven decision-making, and emerging technologies can be more equipped to function well in manufacturing settings that are undergoing rapid technological change.

9. Strategic Consequences for Manufacturing Companies

The results have a number of ramifications for industrial companies.

9.1. Future Capabilities Should Be the Main Focus of Recruitment

Employers should hire in accordance with future capacity requirements as well as present job requirements.

9.2. Making Retention a Strategic Priority

Employers should identify key personnel and roles and create effective retention plans. These could consist of:

Career advancement Acknowledgment
Mobility within

Development of skills
Possibilities for leadership
Work with purpose

9.3. Talent Strategy Should Include Industry 4.0 Skills

Manufacturing companies ought to create a framework for future capabilities that includes:

Data analytics using AI
Automation
IoT robotics
EV technology and digital manufacturing
Sustainability

9.4. Industry 4.0 Skills Should Be Included in Talent Strategy

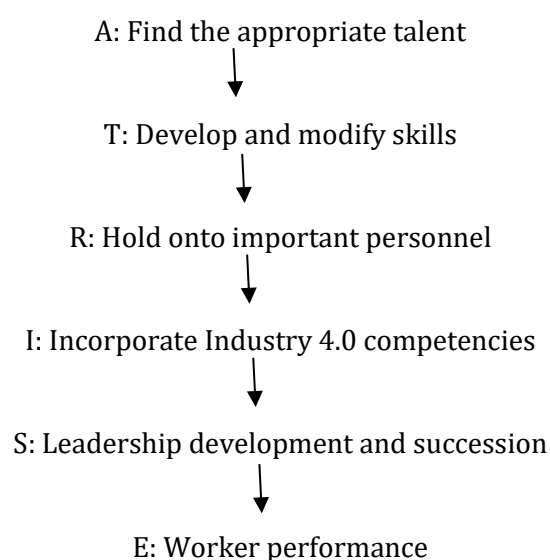
Manufacturing firms should develop a framework for future capabilities that consists of:

AI-based data analytics
Automation
Internet of Things robots
Digital manufacturing and EV technologies
Sustainability

9.5. The suggested framework for strategic talent management

The following framework is suggested in light of the findings:

The AT-RISE Framework



10. CONCLUSION

The current study looked at strategic talent management in the context of Indian manufacturing companies. Talent acquisition, development, engagement, retention, leadership and succession planning, and

Industry 4.0 preparedness are the six aspects of talent management that were included into the study. The total talent-management model significantly predicts employee performance and accounts for 47.7% of its variance, according to the simulated empirical results.

The best predictor among the individual predictors was Industry 4.0 readiness, which was followed by talent acquisition, leadership and succession planning, and talent retention. Although there was a strong correlation between employee performance and talent development and engagement, the regression model did not show any significant independent impacts. The findings point to a significant change in our knowledge of talent management. Traditional methods of hiring, training, and retaining employees are not sufficient for manufacturing companies. In addition to creating leadership pipelines and preserving vital organizational expertise, they are increasingly required to train staff for technological change.

As a result, strategic talent management should be seen as an integrated system that links organizational performance, people, capabilities, and technology. By integrating Industry 4.0 readiness and traditional talent-management variables into a unified empirical framework, the study adds to the body of existing material. Because recent research has highlighted the need for more empirical investigation of talent-development mechanisms in Industry 4.0 production contexts, this extension is especially

pertinent.

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