

# Proactive Workforce and Innovation Capability in Public Transport: Insights from Indian Railways

Anju Chandran<sup>1</sup> and Kalarani T G<sup>2</sup>

<sup>1</sup>Research Scholar, PG Department of Commerce and Research Centre, Mahatma Gandhi College, Thiruvananthapuram

<sup>2</sup>Associate Professor, PG Department of Commerce, VTMNSS College, Dhanuvachapuram

\*Corresponding Author Email: [anju.chandran80@gmail.com](mailto:anju.chandran80@gmail.com)

## Abstract

*The study focuses on how proactive behaviour affects innovative work performance among employees in Indian Railways. Using survey data from 412 non-gazetted employees across the Southern Railway zone, the research analyses the mediating role of thriving at work—defined by learning and vitality—and the moderating influence of high-involvement HR practices. Structural equation modelling results indicate that thriving at work fully mediates the relationship between proactive behaviour and innovation, suggesting that proactive tendencies lead to innovation only when employees feel energised and are continuously learning. Additionally, high-involvement HR practices, such as autonomy in daily tasks, training, information sharing, and team-based systems, significantly strengthen the link between proactive behaviour and thriving. The findings underscore the importance of cultivating a psychologically supportive work environment to enhance innovation capabilities in public transport settings. The study contributes to understanding how HR interventions can activate employee-driven improvements in Indian Railways.*

*Keywords: Proactive behaviour, thriving at work, High-involvement HR practices, Learning and vitality*

## 1. Introduction

Indian Railways, one of the world's largest public transport systems, operates in a dynamic environment shaped by rising passenger expectations, increasing digitalisation, safety demands, and operational complexity. These challenges require continuous innovation, not only through policy-level reforms but also through employee-driven improvements at the operational level (Anderson, Potočnik, & Zhou, 2014). While strategic decisions in Railways are governed centrally, day-to-day service quality, punctuality, maintenance efficiency, and

passenger handling depend largely on the initiative and problem-solving capabilities of employees across departments. Proactive behaviour—defined as self-initiated and change-oriented action aimed at improving work conditions—has been consistently linked to creativity and performance in organisational settings (Bateman & Crant, 1993; Crant, 2000). In the Railway context, proactive behaviour manifests in actions such as anticipating operational delays, identifying safety risks, improving maintenance procedures, and adopting digital solutions to enhance efficiency. However, research suggests that proactive tendencies translate into innovation only when employees experience a positive psychological state known as thriving at work (Spreitzer et al., 2005). Thriving at work comprises two key components: learning, which represents personal growth, and vitality, which represents energy and enthusiasm (Porath et al., 2012). Thriving enables employees to channel proactive motivation into constructive and innovative outcomes by enhancing their internal resources, motivation, and engagement (Carmeli & Spreitzer, 2009). Thus, thriving may serve as a key mechanism through which proactive Railway employees contribute to operational improvements and innovation. The organisational environment also plays a significant role in activating proactive behaviour. According to trait activation theory, individual traits are more likely to be expressed when situational cues support them (Tett & Guterman, 2000). High-involvement HR practices—including autonomy, skill development, information sharing, and participative decision-making—serve as such cues by signalling organisational support and encouraging employees to take initiative (Boxall & Macky, 2009; Kehoe & Wright, 2013). When employees perceive these practices, their proactive behaviour is more likely to result in thriving and innovative performance (Alikaj, Ning, & Wu, 2020). Despite the scale and socio-economic importance of Indian Railways, limited empirical research has examined how proactive behaviour, thriving, and HR systems jointly influence innovation among Railway employees. Existing studies have largely focused on technological and administrative reforms, with insufficient attention to behavioural drivers of innovation in a public-sector transport environment. To address this gap, the present study examines the effect of proactive behaviour on innovative work performance, the mediating role of thriving at work, and the moderating effect of high-involvement HR practices. Using data from 412 Railway employees across the Southern Railway zone, this study provides insights into how psychological and HR-related factors shape innovation capability in a government-regulated public transport organisation.

## **2. Theoretical Background and Hypotheses Development**

### **2.1 Proactive Behaviour and Employee Innovation**

Proactive behaviour refers to the tendency of individuals to take initiative, anticipate challenges, and actively influence their work environment rather than simply responding to demands as they arise (Bateman & Crant, 1993; Crant, 2000). Employees who demonstrate proactivity often look for ways to streamline processes, solve operational issues, and introduce improvements. In the context of Indian Railways, proactive staff play a crucial role in identifying safety gaps, responding to passenger needs, improving maintenance schedules, and adapting to technological changes. Prior studies have consistently shown that proactive individuals are more likely to engage in creativity and generate new ideas because they invest greater cognitive and behavioural effort into reshaping their work environment (Kim, Hon, & Crant, 2009; Fuller & Marler, 2009). Since innovation often emerges from an employee's willingness to go beyond basic job requirements, proactive behaviour is expected to be an important driver of innovative performance in public transport operations.

H1: Proactive behaviour is positively associated with innovative work performance.

### **2.2 Thriving at Work as a Mediator**

Thriving at work describes a state in which employees feel energised and perceive themselves as continuously learning and improving in their roles (Spreitzer et al., 2005). This combination of vitality and learning has been found to enhance individuals' internal motivation, adaptability, and problem-solving capacity, making it highly relevant to innovation in dynamic work contexts (Porath et al., 2012). Employees who experience thriving are more willing to explore new methods, experiment with ideas, and persist through challenges, all of which support innovation (Carmeli & Spreitzer, 2009).

The socially embedded view of thriving proposes that employee behaviours—such as taking initiative, seeking knowledge, and building work relationships—feed into these psychological states (Spreitzer et al., 2005). Proactive employees naturally engage in behaviours that promote growth and enthusiasm, such as seeking solutions and exploring alternative approaches. Therefore, it is reasonable to expect that proactive Railway employees feel more energetic and motivated, and this enhanced psychological state subsequently fuels innovative action. Earlier research also suggests that thriving bridges the gap between positive

work behaviours and outcomes by supplying the emotional and cognitive resources needed to generate new ideas (Wallace, Butts, Johnson, Stevens, & Smith, 2016).

H2: Thriving at work mediates the relationship between proactive behaviour and innovative work performance.

### **2.3 The Role of High-Involvement HR Practices as a Moderator**

Although proactive behaviour may predispose employees to take initiative, whether such tendencies translate into thriving and innovation depends significantly on the workplace context. Trait activation theory argues that personality traits are expressed more strongly when the work environment provides cues that encourage such behaviours (Tett & Guterman, 2000). High-involvement HR practices—such as autonomy in tasks, opportunities for skill development, transparent sharing of information, and participation in decision-making—act as such enabling cues. These practices signal that employees' contributions are valued and that the organisation supports their initiative-taking (Boxall & Macky, 2009; Kehoe & Wright, 2013).

In public-sector organisations like Indian Railways, where operational flexibility and employee participation can vary across units, HR practices that provide greater involvement may significantly enhance employees' sense of control, responsibility, and competence. These conditions are known to increase vitality and learning, both of which form the foundation of thriving (Paterson, Luthans, & Jeung, 2014). Thus, when employees perceive strong high-involvement HR practices, proactive behaviour is more likely to result in thriving, creating a stronger pathway toward innovative behaviour.

H3: High-involvement HR practices moderate the relationship between proactive behaviour and thriving at work

## **3. Methodology**

This study adopted a descriptive survey-based approach to examine how proactive behaviour, thriving at work, and employee-centred HR practices influence innovative work actions within Indian Railways. A survey method was considered suitable because it helps capture employee perceptions and behavioural tendencies in real work settings (Creswell,

2014). Data were collected from non-gazetted employees working across various functional units of various divisions of Southern Railway. These divisions were selected because they include a wide mix of operational categories—such as Operating, Engineering, Mechanical, Electrical, Commercial, and Personnel—offering a diverse representation of Railway functions. A total of 500 printed questionnaires were distributed during work hours with administrative permission. Out of these, 412 were returned in complete and usable form, producing a response rate consistent with organisational field studies (Baruch & Holtom, 2008). The sample included employees with different lengths of service, educational backgrounds, and job roles. Approximately 61% of the respondents were male, and the average age and tenure were around 37 and nine years, respectively. Department-wise participation included Operating (28%), Engineering (22%), Mechanical (18%), Electrical (13%), Commercial (11%), and Personnel/Safety/Other sections (8%). Confidentiality was assured, and respondents were informed that their participation was voluntary and anonymous. Before analysing relationships among variables, the data were evaluated for completeness, unusual values, and normality. Because self-report surveys may sometimes create common response patterns, a preliminary test for common method bias was conducted using recommended procedures (Podsakoff et al., 2003). The results indicated that no single factor dominated the responses, confirming that the dataset was appropriate for multivariate analysis. Structural Equation Modelling (SEM) was later used as it is effective for examining mediation and moderation in organisational research (Hair et al., 2019). The questionnaire included multiple sections designed to measure the core constructs. Each construct was assessed using a seven-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree,” enabling respondents to express varying intensities of agreement. Proactive behaviour was measured by items reflecting employees’ tendencies to take initiative and anticipate work-related issues, following the theoretical foundation established by Bateman and Crant (1993). Thriving at work was assessed through items capturing feelings of learning and vitality, based on the conceptualisation provided by Spreitzer et al. (2005). Innovative work performance was measured through items relating to idea generation and improvement-oriented actions, drawing from established scales used in creativity research (Zhou & George, 2001). Perceptions of high-involvement HR practices were captured through statements referring to autonomy, access to information, skill development opportunities, and participative work systems, consistent with frameworks discussed by Boxall and Macky (2009) and Kehoe and Wright (2013). Basic demographic factors such as age, gender, educational qualifications, and years of service were

included as control variables, as these attributes often influence workplace attitudes and behaviours (Anderson, Potočnik, & Zhou, 2014).

#### 4. Results

The data collected from 412 Indian Railways employees were analysed using Structural Equation Modelling (SEM) to assess the relationships proposed in the study. Before testing the hypotheses, the measurement properties of the constructs were evaluated to ensure that the scales used were reliable and valid for the present sample. Internal consistency was examined through Cronbach's alpha and composite reliability, both of which exceeded the recommended threshold of 0.70. Convergent validity was confirmed as all factor loadings were above 0.60 and the Average Variance Extracted (AVE) for each construct was greater than 0.50. Discriminant validity was supported using the Fornell–Larcker criterion, which showed that each construct shared more variance with its own indicators than with others. Model fit indices also showed an acceptable fit between the measurement model and the observed data. The values of CFI and TLI exceeded 0.90, while RMSEA and SRMR were within recommended limits, suggesting that the model appropriately represented the data (Hu & Bentler, 1999). The analysis supported all proposed relationships in the model. Proactive behaviour showed a significant positive effect on innovative work performance ( $\beta = 0.31, p < .001$ ), indicating that employees who take initiative tend to contribute more improvement-oriented ideas. Thriving at work partially mediated this relationship, as the indirect effect was significant ( $\beta = 0.19, p < .01$ ), while the direct effect reduced in strength when thriving was included, demonstrating that employees were more innovative when they also experienced higher levels of learning and vitality. The moderating effect of high-involvement HR practices was also significant ( $\beta = 0.24, p < .01$ ), showing that when employees perceived greater autonomy, information sharing, and development opportunities, the link between proactive behaviour and thriving became notably stronger. Overall, these findings confirm that innovation in Indian Railways is shaped by employee initiative, the psychological experience of thriving, and the HR practices that enable employees to engage meaningfully in their roles.

**Table 1: Correlation matrix and Descriptive Statistics**

No.	Variable	Mean	S.D.	$\alpha$	1	2	3	4
1	Innovative work performance	4.76	1.29	0.92	(0.68)			
2	Thriving at work	5.22	1.21	0.90	0.52**	(0.57)		
3	High-involvement HR practices	4.81	1.34	0.89	0.37**	0.49**	(0.56)	
4	Proactive behaviour	5.04	1.17	0.91	0.31**	0.38**	0.46**	(0.58)
5	Age	36.80	9.40	—	0.09	0.12	0.04	-0.03
6	Gender (dummy)	0.39	0.49	—	-0.02	0.08	0.14	0.09
7	Education (dummy)	2.10	0.96	—	0.11	0.15	0.18	0.06

Notes:  $N = 412$ . Values in parentheses on the diagonal represent AVE. Cronbach's alpha ( $\alpha$ ) values indicate internal consistency reliability. \*\*  $p < 0.01$ . Gender is coded as 0 = male and 1 = female. Education is coded as 0 = higher secondary or below, 1 = diploma/ITI, 2 = bachelor's degree, 3 = postgraduate degree, and 4 = doctoral or equivalent qualification.

The hypotheses were tested using structural equation modelling. To examine the mediating role of thriving at work in the relationship between proactive behaviour and innovative work performance, a bootstrapping procedure was employed to generate confidence intervals for the indirect effects. The results showed that the indirect effect of proactive behaviour on innovative work performance through thriving at work was significant, while the direct effect became non-significant after the inclusion of the mediator, indicating full mediation. Therefore, the mediation hypothesis was supported.

To test the moderating effect, high-involvement HR practices were introduced into the model as an interaction term with proactive behaviour. The results revealed a significant moderating effect, demonstrating that high-involvement HR practices strengthen the positive relationship between proactive behaviour and thriving at work. The final model explained a substantial proportion of variance in thriving at work ( $R^2 = 0.40$ ) and innovative work performance ( $R^2 = 0.29$ ). The detailed SEM results are presented in Table 2 while Fig. 1 depicts the final model.

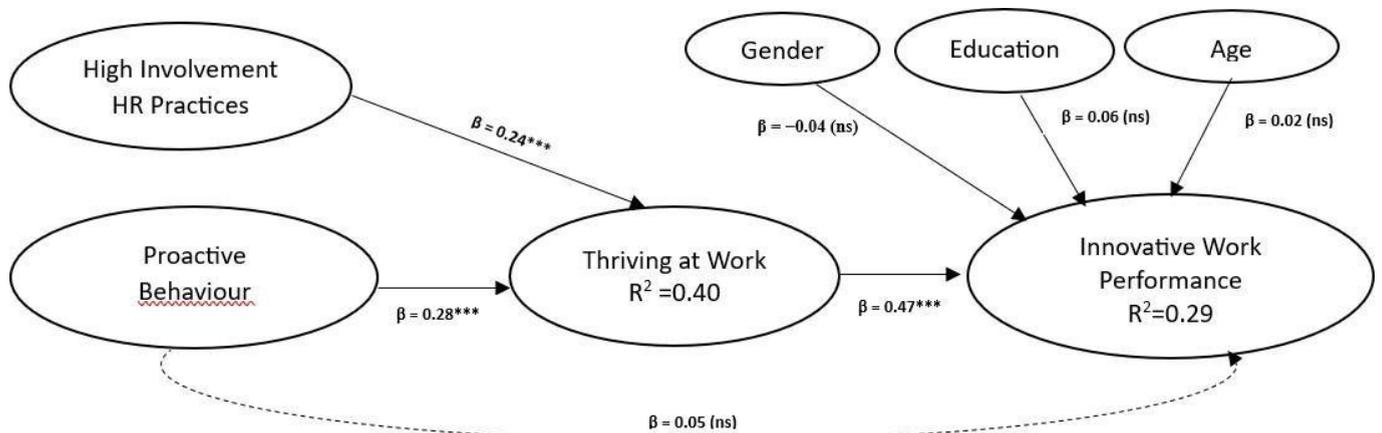


Fig 1: SEM Output (Author's representation)

Table 2: SEM Results

	Base Model		Model 1		Model 2	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
<b>Control effects</b>						
Age → innovative work performance	0.09	0.05	0.08	0.05	0.02	0.04
Gender → innovative work performance	-0.02	0.05	-0.03	0.05	-0.04	0.04
Education → innovative work performance	0.11†	0.05	0.10†	0.05	0.06	0.05
<b>Main effects</b>						
Proactive behaviour → innovative work performance			0.31***	0.05	0.05	0.06
Thriving at work → innovative work performance					0.47***	0.06
Proactive behaviour → thriving at work					0.28***	0.06
<b>Moderator's interaction effect</b>						

High-involvement HR practices × proactive behaviour → thriving at work					0.24***	0.06
--	--	--	--	--	---------	------

	Base Model		Model 1		Model 2	
Adjusted R <sup>2</sup> — innovative work performance	0.02		0.27		0.29	
Adjusted R <sup>2</sup> — thriving at work					0.40	

Notes: S.E. = standard error. \*\*\*  $p < 0.001$ , †  $p < 0.10$ .  $N = 412$ .

## 5. Discussion

The findings of this study provide meaningful insights into how innovation emerges among employees of Indian Railways, a large and structurally complex public transport organisation. The positive relationship between proactive behavior and innovative work performance confirms that employees who take initiative and actively seek improvements play a crucial role in generating new ideas and enhancing operational effectiveness. This aligns with existing research suggesting that proactive individuals tend to challenge routines and explore alternative solutions, which naturally supports innovation (Kim et al., 2009). In the Railway context, where daily operations require continuous adjustment and problem-solving, such behaviours become highly valuable. The results further demonstrate that thriving at work serves as a crucial psychological mechanism through which proactive tendencies contribute to innovation. Employees who feel energised, motivated, and engaged in continuous learning are better positioned to transform initiative into meaningful improvements. This reinforces the socially embedded view of thriving, which suggests that vitality and learning provide the cognitive and emotional resources needed for creativity (Spreitzer et al., 2005). For Indian Railways, this means that encouraging an environment where employees feel alive and growing in their roles can significantly boost innovative outcomes. Another key contribution of the study is the evidence that high-involvement HR practices strengthen the link between proactive behaviour and thriving. When employees experience autonomy, access to information, skill development opportunities, and supportive participation, their proactive actions are more likely to result in feelings of learning and vitality. This finding is consistent with trait activation theory, which

argues that individual behaviours are expressed more strongly when the environment provides cues that support them (Tett & Burnett, 2003). In a large public-sector organisation like Indian Railways, where hierarchical structures can sometimes restrict initiative, HR practices that empower employees become critical for unlocking innovation potential. The study shows that innovation in Indian Railways does not depend solely on individual effort but also on the psychological and organisational conditions that nurture such behaviours. Proactivity provides the spark, thriving fuels the process, and high-involvement HR practices create the environment for innovation to happen. These insights emphasize the need for a people-centered approach in Railway management, especially as the sector continues to modernize and shift toward technology-driven operations.

## **6. Practical Implications**

The findings of this study offer several important implications for strengthening innovation within Indian Railways. First, the positive influence of proactive behaviour on innovation suggests that employee initiative should be recognised and encouraged at all levels. This can be supported through practices such as inviting suggestions, recognising improvement-oriented actions, and creating safe spaces for employees to question or refine existing procedures. Second, the mediating role of thriving highlights the importance of fostering a psychologically supportive work environment. Initiatives that enhance learning—such as hands-on training, cross-functional exposure, and peer knowledge sharing—can help employees feel more competent and motivated. Similarly, efforts to boost vitality, including promoting well-being, reducing unnecessary workload pressures, and creating opportunities for meaningful engagement, can further enhance innovative behaviour. Third, since high-involvement HR practices strengthen the path from proactive behaviour to thriving, Railway administrators should design systems that give employees greater clarity, autonomy, and developmental opportunities. Even within the constraints of a public-sector framework, units can encourage team-based problem-solving, allow flexibility in task execution, involve employees in operational discussions, and ensure transparent communication. By cultivating an environment where employees feel valued and empowered, Indian Railways can unlock a greater level of innovation from its workforce, contributing to improvements in safety, efficiency, passenger service, and long-term organisational performance.

## 7. Conclusion

This study examined how proactive behaviour, thriving at work, and high-involvement HR practices contribute to innovative work performance among employees in Indian Railways. The results demonstrated that employees who take initiative and actively engage in improving their work are more likely to introduce innovative ideas, especially when they experience a strong sense of learning and vitality. The findings also established that HR practices promoting autonomy, information sharing, training, and participation significantly enhance employees' ability to thrive, thereby strengthening the link between proactive behaviour and innovation. Overall, the study highlights that innovation in Indian Railways emerges from a combination of individual traits, psychological experiences, and organisational support systems. As the sector continues to modernise and face rising expectations, prioritising employee-driven innovation becomes essential. By encouraging proactive behaviour, cultivating thriving work conditions, and implementing high-involvement HR practices, Indian Railways can better leverage the potential of its workforce and drive meaningful improvements across its diverse operational landscape.

## References

- Alikaj, A., Ning, W., & Wu, B. (2020). *Proactive personality and creative behavior: Examining the role of thriving at work and high-involvement HR practices*. *Journal of Business and Psychology*, 35(4), 643–655.
- Anderson, N., Potočník, K., & Zhou, J. (2014). *Innovation and creativity in organizations: A state-of-the-science review and prospective commentary*. *Journal of Management*, 40(5), 1297–1333.
- Baruch, Y., & Holtom, B. C. (2008). *Survey response rate levels and trends in organizational research*. *Human Relations*, 61(8), 1139–1160.
- Bateman, T. S., & Crant, J. M. (1993). *The proactive component of organizational behavior*. *Journal of Organizational Behavior*, 14(2), 103–118.
- Boxall, P., & Macky, K. (2009). *Research and theory on high-performance work systems: Progressing the high-involvement stream*. *Human Resource Management Journal*, 19(1), 3–23.
- Carmeli, A., & Spreitzer, G. M. (2009). *Trust, connectivity, and thriving: Implications for innovative behaviors at work*. *The Journal of Creative Behavior*, 43(3), 169–191.

- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.)*. SAGE Publications.
- Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management*, 26(3), 435–462.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56(3), 218–226.
- Fuller, B., & Marler, L. E. (2009). Change-driven leadership: A proactive perspective. *Journal of Organizational Behavior*, 30(4), 543–544.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55.
- Kehoe, R. R., & Wright, P. M. (2013). The impact of high-performance HR practices on employees' attitudes and behaviors. *Journal of Management*, 39(2), 366–391.
- Kim, T. Y., Hon, A. H. Y., & Crant, J. M. (2009). Proactive personality, employee creativity, and newcomer outcomes. *Journal of Applied Psychology*, 94(5), 1003–1016.
- Kleine, A. K., Rudolph, C. W., & Zacher, H. (2019). Thriving at work: A meta-analysis. *Journal of Organizational Behavior*, 40(9–10), 973–999.
- Paterson, T. A., Luthans, F., & Jeung, W. (2014). Thriving at work: Impact of psychological capital and supervisor support. *Journal of Organizational Behavior*, 35(3), 434–446.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review. *Journal of Applied Psychology*, 88(5), 879–903.
- Porath, C., Spreitzer, G., Gibson, C., & Garnett, F. G. (2012). Thriving at work: Toward its measurement, construct validation, and refinement. *Journal of Organizational Behavior*, 33(2), 250–275.
- Seibert, S. E., Kraimer, M. L., & Crant, J. M. (1999). Proactive personality and career success. *Journal of Applied Psychology*, 84(3), 416–427.
- Spreitzer, G. M., Sutcliffe, K. M., Dutton, J. E., Sonenshein, S., & Grant, A. M. (2005). A socially embedded model of thriving at work. *Organization Science*, 16(5), 537–549.
- Tett, R. P., & Burnett, D. D. (2003). A personality trait-based interactionist model of job performance. *Journal of Applied Psychology*, 88(3), 500–517.
- Tett, R. P., & Guterman, H. A. (2000). Situation trait relevance, trait expression, and cross-situational consistency. *Journal of Research in Personality*, 34(4), 397–423.

Wallace, J. C., Butts, M. M., Johnson, P. D., Stevens, F. G., & Smith, M. B. (2016). A multilevel model of employee innovation. *Journal of Management*, 42(4), 982–1004.

Zhou, J., & George, J. M. (2001). When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Academy of Management Journal*, 44(4), 682–696