

Demographic Differences in Employee Readiness for RPA Adoption in Delhi NCR IT Firms

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Abstract

Robotic Process Automation (RPA) is increasingly adopted in service organizations to automate repetitive and rule-based tasks. However, successful implementation depends not only on technical capability but also on employee readiness for change. This study examines whether employee readiness for RPA adoption differs across demographic characteristics among non-managerial employees working in IT service firms in Delhi NCR, where RPA had been implemented within the previous six months. Data were collected from 161 usable questionnaires out of 250 distributed. An adapted employee readiness scale was used, and responses were categorized into agree, neutral, and disagree for analysis. Descriptive results indicate a mixed pattern of readiness. About 47.8% of respondents agreed that they were ready for RPA adoption, 50.3% were neutral, and 1.9% disagreed. Chi-square analysis shows no statistically significant differences in readiness based on gender or age. However, a significant difference was found based on tenure ($\chi^2(10) = 24.98, p = .005$), with a small to moderate association (Cramer's $V = .28$). These findings suggest that employee readiness for RPA adoption should be interpreted as moderate or uncertain rather than uniformly strong. The study contributes to RPA adoption research by identifying tenure as an important factor for designing targeted training, communication strategies, and change management practices in IT service firms.

Keywords - Robotic process automation, RPA, employee readiness, technology readiness, organizational change, IT services, Delhi NCR.

1. Introduction

Robotic Process Automation (RPA) refers to the use of software robots to automate repetitive, rule-based, and high-volume business processes that previously required human execution. In service organizations, RPA is commonly applied to activities such as data entry, invoice processing, customer-service support, report generation, and back-office documentation. By reducing manual effort and standardizing routine operations, RPA can improve speed, accuracy, and process consistency (Radke et al., 2020; Siderska, 2020).

However, RPA adoption is not only a technical decision. It changes work routines, skill expectations, task allocation, and employees' perceptions of job security. While some employees may view RPA as an opportunity to reduce repetitive work and focus on higher-value tasks, others may associate it with displacement, stress, or loss of control. For this reason, employee readiness becomes a central condition for successful RPA implementation.

In this paper, employee readiness refers to employees' cognitive and emotional preparedness to support and participate in an organizational change. Readiness reflects whether employees believe that the change is necessary, appropriate, beneficial, supported by the organization, and manageable in relation to their own capabilities (Armenakis et al., 1993). In the context of RPA, readiness indicates whether employees feel prepared to work with automated processes, learn new task arrangements, and accept RPA-enabled changes in daily work.

The present study focuses on non-managerial employees in IT service firms in Delhi NCR where RPA had been implemented during the previous six months. This context is narrower than the overall Indian service industry, and the paper therefore interprets its findings within the IT-service setting studied. The main research question is: Do demographic characteristics, specifically gender, age, and tenure, significantly influence employee readiness for RPA adoption among non-managerial employees in IT service firms in Delhi NCR?

The study contributes to applied RPA adoption research in three ways. First, it examines readiness from the employee perspective rather than focusing only on organizational efficiency. Second, it tests whether readiness differs across demographic groups. Third, it provides practical implications for managers responsible for training, communication, and change management during RPA implementation.

2. Literature Review

2.1 RPA and employee readiness

RPA has become an important component of digital transformation because it can automate structured and repetitive tasks without requiring a complete redesign of existing information systems. Prior studies show that RPA can support efficiency, accuracy, and customer-service improvement, especially in back-office and service-process settings (Fernandez and Aman, 2021; Flechsig et al., 2022). At the same time, implementation may face barriers related to process selection, governance, employee skills, and organizational resistance.

Employee readiness is particularly important because automation often changes how employees define their roles. Organizational change research emphasizes that employees are more likely to support change when they understand why change is needed, believe that the organization is capable of implementing it, and perceive personal or organizational value in the change (Armenakis et al., 1993; Arnéguy et al., 2020). In RPA adoption, readiness may therefore depend on whether employees perceive RPA as a supportive tool or as a threat to their current position.

Technology acceptance research also suggests that adoption is influenced by perceived usefulness, perceived ease of use, social influence, facilitating conditions, and individual technology readiness (Davis, 1989; Parasuraman, 2000; Venkatesh et al., 2003). These ideas are relevant to RPA because employees may be more open to automation when they understand its usefulness, feel capable of using it, and receive adequate organizational support.

2.2 Demographic differences in readiness for RPA adoption

Demographic variables may shape how employees interpret technological change. Gender and age are frequently examined in technology adoption research because they may be associated with different experiences, confidence levels, or exposure to digital tools. However, demographic effects are not always consistent across studies, and they may weaken when employees have similar work roles, similar organizational exposure, or similar access to training.

Tenure may be especially relevant in RPA adoption. Employees with longer tenure may understand organizational routines more deeply and may recognize why automation is necessary. At the same time, longer-tenured employees may be more attached to established processes and may require clearer communication regarding role changes. Employees with shorter tenure may be more

flexible and more willing to learn, but they may also have less organizational knowledge. These competing possibilities make tenure an important variable for empirical examination.

Based on this reasoning, the study examines the following hypotheses:

H1: Employee readiness for RPA adoption differs significantly by gender.

H2: Employee readiness for RPA adoption differs significantly by age.

H3: Employee readiness for RPA adoption differs significantly by tenure.

3. Materials and Methods

3.1 Research context and sample

The study was conducted among non-managerial employees working in IT service firms in Delhi NCR. The firms were selected because RPA had been implemented in their operations within the previous six months. This criterion was used to ensure that respondents had recent exposure to RPA-related changes rather than answering only from general awareness.

A total of 250 questionnaires were distributed, and 161 complete and usable responses were received. The response rate was therefore 64.4%. Questionnaires were distributed among eligible non-managerial employees in the selected firms. Although questionnaires were circulated among employees within the eligible respondent pool, firm access depended on the availability of organizations that had recently implemented RPA. Therefore, the sampling approach should be interpreted as practical random distribution within eligible firms rather than as a fully representative probability sample of the entire Indian service industry.

3.2 Measurement of employee readiness

Employee readiness for RPA adoption was measured using an adapted version of the readiness-for-change scale developed by Armenakis et al. (1993). The scale is suitable because it captures the central logic of readiness: whether employees recognize the need for change, perceive the change as appropriate, feel able to adapt, and see value in supporting the change. Items were contextually adapted to refer to RPA adoption in the organization.

Responses were recorded using a Likert-type agreement format and then grouped into three categories for categorical analysis: agree, neutral, and disagree. The grouping was based on respondents' overall readiness tendency relative to the neutral point of the scale. This grouping allowed cross-tabulation and chi-square testing across demographic categories. Because the available dataset was analyzed at the grouped-response level, item-level reliability statistics could not be recomputed in this revision; this is acknowledged as a limitation and should be reported in future replications using item-level data.

3.3 Data analysis

Data were analyzed using descriptive statistics, cross-tabulation, and Pearson chi-square tests in SPSS 23.0. Chi-square analysis was appropriate because the study examined associations between categorical demographic variables and categorical readiness levels. Gender, age, and tenure were tested separately against readiness. Cramer's V was calculated for the significant chi-square result to indicate association strength.

Because some tenure groups were small, especially employees with less than one year of tenure and those with 20 years or more, the tenure-related chi-square result is interpreted cautiously. The analysis is useful for detecting a pattern in the present sample, but it should not be overgeneralized without a larger and more evenly distributed sample.

4. Results

4.1 Overall readiness for RPA adoption

Figure 1 shows the overall distribution of employee readiness for RPA adoption. Out of 161 respondents, 77 employees (47.8%) agreed that they were ready for RPA adoption, 81 employees (50.3%) were neutral, and 3 employees (1.9%) disagreed. This pattern suggests mixed or cautious readiness rather than strong readiness. The predominance of neutral responses may indicate uncertainty, incomplete understanding of RPA, limited confidence in implementation support, or a wait-and-see attitude among employees.

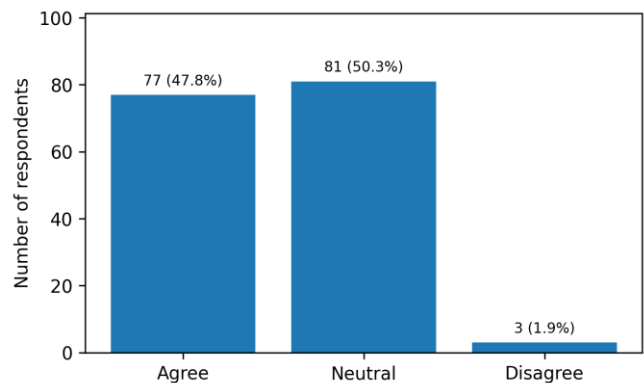


Figure 1. Overall employee readiness for RPA adoption (n = 161).

4.2 Differences in readiness by demographic variables

Table 1 presents the chi-square results. Readiness did not differ significantly by gender, $\chi^2(2) = 1.873$, $p = .392$, or by age, $\chi^2(8) = 8.243$, $p = .410$. Therefore, H1 and H2 were not supported in this sample. However, readiness differed significantly by tenure, $\chi^2(10) = 24.98$, $p = .005$. The effect size for the tenure association was Cramer's V = .28, suggesting a small-to-moderate association. Thus, H3 was supported, although the finding should be interpreted carefully because several tenure categories had small cell counts.

Table 1. Pearson chi-square tests for demographic differences in readiness

Variable relationship	χ^2 value	df	p-value
Gender x readiness	1.873	2	.392
Age x readiness	8.243	8	.410
Tenure x readiness	24.980	10	.005

Note. p-values are two-sided. Cramer's V for tenure x readiness = .28.

Table 2 gives the tenure-wise distribution. The highest agreement levels appeared in the smallest tenure groups: employees with less than one year of tenure (5 of 6, 83.3%) and employees with 20 years or more of tenure (4 of 4, 100.0%). However, these groups are very small, so the percentages should not be interpreted as stable population estimates. Among larger groups, employees with 5-10 years of tenure showed a balanced but slightly positive pattern, with 36 of 70 respondents (51.4%)

agreeing and 34 of 70 (48.6%) remaining neutral. Employees with 1-5 years and 10-15 years of tenure showed more neutral responses than agreement responses. Overall, the tenure pattern suggests that readiness may depend on how employees experience RPA in relation to career stage, accumulated organizational knowledge, and perceived need for skill development.

Table 2. Cross-tabulation of tenure and employee readiness for RPA adoption

Tenure	Agree n (%)	Neutral n (%)	Disagree n (%)	Total
<1 year	5 (83.3)	1 (16.7)	0 (0.0)	6
1-5 years	23 (41.1)	32 (57.1)	1 (1.8)	56
5-10 years	36 (51.4)	34 (48.6)	0 (0.0)	70
10-15 years	3 (23.1)	8 (61.5)	2 (15.4)	13
15-20 years	6 (50.0)	6 (50.0)	0 (0.0)	12
20+ years	4 (100.0)	0 (0.0)	0 (0.0)	4
Total	77 (47.8)	81 (50.3)	3 (1.9)	161

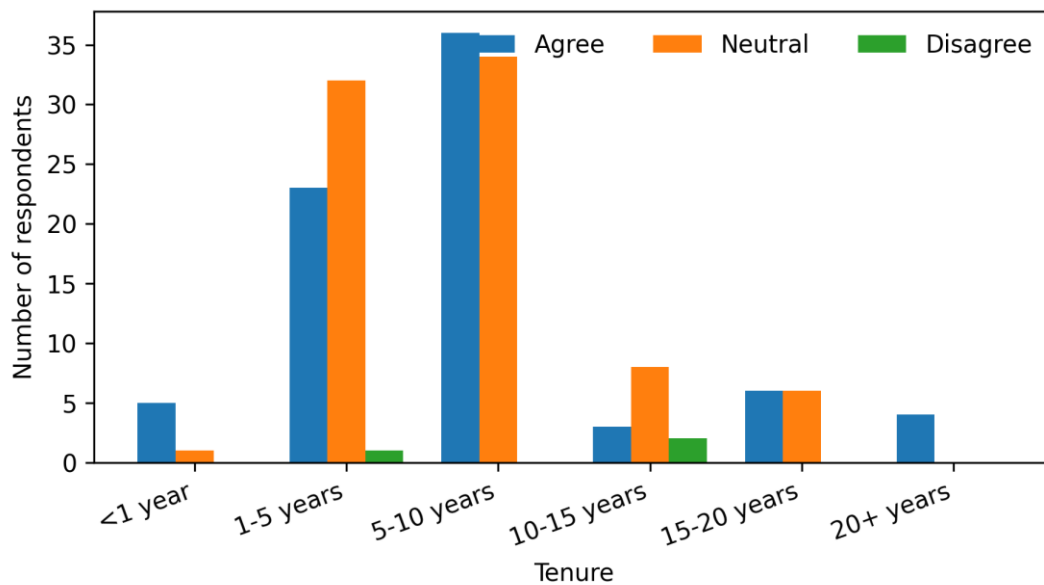


Figure 2. Employee readiness by tenure group.

5. Discussion

The results show that employee readiness for RPA adoption in the studied IT service firms is best described as moderate or uncertain. Nearly half of the respondents agreed that they were ready for RPA adoption, but slightly more than half were either neutral or negative. Neutrality should not be dismissed as indifference. In RPA transitions, neutral responses may indicate uncertainty about job implications, insufficient training, limited exposure to RPA outcomes, or a need for clearer communication from management.

The absence of significant differences by gender and age suggests that readiness in this sample may be shaped less by basic demographic identity and more by work-related experience with organizational processes. This does not mean gender and age are irrelevant in all RPA contexts; rather, the present data do not provide evidence of significant readiness differences across these variables.

The significant tenure effect has practical importance. Employees at different career stages may interpret RPA differently. Newer employees may be open to learning automation-related skills as part of career entry and development. Longer-tenured employees may understand process inefficiencies more clearly and may therefore appreciate how RPA can reduce repetitive work. Mid-tenure employees may be more cautious if RPA is perceived as disrupting established responsibilities or requiring reskilling while they are already embedded in existing routines.

For managers, the findings suggest that RPA change management should not use a one-size-fits-all approach. Communication should explain why RPA is being adopted, which tasks will be automated, what roles will change, and how employees will be

supported. Training should be tailored by tenure group. Newer employees may benefit from basic process and RPA orientation, while experienced employees may benefit from involvement in process redesign, bot monitoring, exception handling, and mentoring roles. Employees who remain neutral should be treated as a key audience for engagement because they may become supportive if uncertainty is reduced.

6. Limitations and Future Research

This study has several limitations. First, the sample was limited to 161 non-managerial employees from IT service firms in Delhi NCR. Therefore, the findings should not be generalized to the entire Indian service industry without caution. Second, the tenure distribution included some small subgroups, especially the less-than-one-year and 20-years-or-more categories. This creates sparse cells in the cross-tabulation and limits the stability of percentage comparisons. Third, the analysis used grouped readiness categories, which supported chi-square testing but reduced the detail available from the original scale responses. Fourth, item-level reliability could not be recomputed from the grouped dataset used in this revision.

Future research should use larger and more balanced samples across multiple service sectors, such as banking, insurance, healthcare, telecommunications, and business-process outsourcing. Future studies should also include additional demographic and organizational variables, including education, designation, income, digital skills, department, prior automation exposure, training quality, and perceived job insecurity. Longitudinal research would be valuable because readiness may

change after employees receive training or gain direct experience with RPA-supported work.

7. Conclusion

This study examined demographic differences in employee readiness for RPA adoption among non-managerial employees in IT service firms in Delhi NCR. The findings show a mixed readiness pattern: 47.8% of respondents agreed that they were ready for RPA adoption, 50.3% were neutral, and 1.9% disagreed. This indicates cautious readiness rather than strong and uniform readiness.

The chi-square results showed no significant readiness differences by gender or age in the sample. However, readiness differed significantly by tenure, with a small-to-moderate association. This suggests that employee experience within the organization may shape how RPA is understood and accepted. The study therefore recommends that managers pay particular attention to tenure-based communication, training, and involvement strategies when implementing RPA.

Overall, the paper supports the view that RPA adoption should be managed as both a technological and a human change process. Technical efficiency alone is unlikely to ensure successful adoption. Employees need clarity, support, training, and confidence that RPA will help them adapt to changing work requirements rather than simply threatening existing roles.

References

- i. Al Balushi, M., and Goel, N. (2020). The development of Robotic Process Automation (RPA) for the efficiency of back-office operations at Bank Muscat. *Journal of Student Research*. <https://doi.org/10.47611/jsr.vi.849>
- ii. Armenakis, A. A., Harris, S. G., and Mossholder, K. W. (1993). Creating readiness for organizational change. *Human Relations*, 46(6), 681-703. <https://doi.org/10.1177/001872679304600601>
- iii. Arnéguy, E., Ohana, M., and Stinglhamber, F. (2020). Overall justice, perceived organizational support and readiness for change: The moderating role of perceived organizational competence. *Journal of Organizational Change Management*, 33(5), 765-777. <https://doi.org/10.1108/JOCM-12-2019-0373>
- iv. Cooper, L., Holderness, D. K., Sorensen, T., and Wood, D. A. (2019). Perceptions of Robotic Process Automation in public accounting. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3445005>
- v. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>
- vi. Fernandez, D., and Aman, A. (2021). The challenges of implementing Robotic Process Automation in global business services. *International Journal of Business and Society*, 22(3), 1269-1282. <https://doi.org/10.33736/ijbs.4301.2021>
- vii. Flechsig, C., Anslinger, F., and Lasch, R. (2022). Robotic Process Automation in purchasing and supply management: A multiple case study on potentials, barriers, and implementation. *Journal of Purchasing and Supply Management*, 28(1), 100718. <https://doi.org/10.1016/j.pursup.2021.100718>
- viii. Inuwa, M., and Rahim, S. B. A. (2020). Lean readiness factors and organizational readiness for change in manufacturing SMEs: The role of organizational culture. *Journal of Critical Reviews*, 7(5), 1581-1591. <https://doi.org/10.31838/jcr.07.05.10>
- ix. Johansson, B., Lindgren, I., Engberg, S., and Sördal, T. (2020). Impacts of RPA on employees' skill variety. In *Proceedings of the 26th Americas Conference on Information Systems (AMCIS 2020)*.
- x. Kaldon, K., and Love, R. (2021). Robotic Process Automation (RPA) workshop. In *SIGITE 2021: Proceedings of the 22nd Annual Conference on Information Technology Education*. <https://doi.org/10.1145/3450329.3476871>
- xi. Papa, E. O. (2022). The impact of barriers and benefits on adoption readiness of Robotic Process Automation in Kenyan commercial banks [Master's thesis, University of Nairobi]. University of Nairobi Repository.
- xii. Parasuraman, A. (2000). Technology Readiness Index (TRI): A multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research*, 2(4), 307-320. <https://doi.org/10.1177/109467050024001>
- xiii. Radke, A. M., Dang, M. T., and Tan, W. K. A. (2020). Using Robotic Process Automation (RPA) to enhance item master data maintenance process. *LogForum*, 16(1), 129-140. <https://doi.org/10.17270/J.LOG.2020.380>
- xiv. Siderska, J. (2020). Robotic Process Automation: A driver of digital transformation? *Engineering Management in Production and Services*, 12(2), 21-31. <https://doi.org/10.2478/emj-2020-0009>
- xv. Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478. <https://doi.org/10.2307/30036540>