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Optimizing recruitment processes for higher productivity: insights from Delhi-NCR IT sector

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Abstract

Purpose: This paper aims to investigate optimizing recruitment processes for higher productivity in the Delhi-NCR IT sector. This study examines the optimization of recruitment processes in the Delhi-NCR IT sector, focusing on the interplay between recruitment practices, talent management, training and development, employee satisfaction, and productivity.

Design/methodology/approach: A mixed-methods approach was employed, combining surveys and interviews with HR professionals and employees from leading IT companies in the region. The study's primary data was acquired by distributing a structured questionnaire to a sample of HR professionals and recruiters from IT organizations in the Delhi-NCR region.

Findings: A positive correlation was found between effective recruitment practices and employee productivity, with talent management, training and development, and employee satisfaction as a mediating factor. The research also provided actionable insights for IT companies in the Delhi-NCR region, emphasizing the importance of aligning recruitment process strategies with organizational culture and development initiatives to enhance employee productivity and satisfaction. The study revealed that talent management, company culture, Performance Appraisals and Feedback, and training and development significantly influence employees' productivity in the IT sector.

Originality/Value: The study contributes to the existing knowledge on recruitment process and productivity, offering practical recommendations for HR professionals and organizations seeking to optimize their recruitment processes.

Keywords Talent Acquisition, Productivity, Employee Satisfaction, Talent Management, Company Culture, Training and Development, IT Sector, Delhi-NCR.

Paper Type: Research Paper

Introduction

The information technology industry has grown into a major driver of economic growth in India, particularly in the Delhi-National Capital Region (NCR), where it has made substantial contributions to GDP and social welfare. No other region in India has felt the unmatched influence of the IT/software sector than the Delhi-National Capital Region. The National Capital Region (NCR) is India's dream IT industry location. Successful information technology (IT) sectors rely on well-managed human resources to operate and function (Milkovich *et. al,* 2020). Employees' output in the information technology industry is highly dependent on the hiring process's quality and the managers' skills in charge. Recruiting qualified people to help a company expand and improve is the first step in building a strong team (Lal and Goyal, 2022).

An organization's overall productivity can be enhanced by implementing a well-designed and efficiently executed recruitment process, which guarantees the selection of qualified and capable personnel. A successful recruiting process incorporates steps like analyzing the position, identifying potential candidates, selecting the best ones, and providing orientation (Lievens and Chapman, 2019). If one wants to foster a great work environment and help people reach their full potential, one needs competent management. Human Resource Management is a powerful

tool for organizations, and competent managers have the know-how to use it to inspire, direct, and grow their employees (El-Farr and Hosseingholizadeh, 2019).

Human resource management, or HRM, is the process through which an organization's capacity to recruit, select, develop, and assess its workforce is managed. Personnel management encompasses a wide range of activities, including but not limited to training and development, performance reviews, compensation, and employee empowerment. Employees support the entire system (Anwar and Abdullah, 2021). Therefore, it is important to retain employees to keep the organization moving forward. Global corporations and small businesses use employee satisfaction tactics to keep the greatest personnel on staff (Vashistha*et al.*, 2021).

Effects of the Recruitment Process on Staff Productivity

Quality Hiring: The calibre of the employees recruited is heavily influenced by the hiring procedure. Candidates with the necessary expertise, experience, and cultural fit can be found through a well-planned recruitment process that includes comprehensive screening, evaluations, and interviews. Conversely, hiring people who do not fit in with the culture of the company or do not have the right skills can be the consequence of a hasty or disorganized hiring procedure. Poor hiring practices can result in lower output, more time spent training, and higher employee turnover (Yukama*et al.*, 2020).

*Time-to-Fill Positions:*Workers' output is directly proportional to how long it takes to fill unfilled jobs. Delays in hiring new staff can occur as a result of lengthy recruitment processes. These processes are marked by delayed decision-making, heavy documentation, or many rounds of interviews (Tsarenko and Krishnamurthy, 2021). Excessive workload for current employees can cause burnout, low morale, and decreased production. To minimize disruption to production, streamline the recruitment process, use technology-driven tools, and set clear timetables. This will dramatically cut the time-to-fill roles (Santos *et al.*, 2020).

Employee Morale and Engagement: Employee engagement and morale are impacted by the hiring process as well. Candidates have a more favorable impression of the company when they participate in a transparent and organized process that provides them with frequent updates and feedback. When new employees have a good first impression of the company, it increases their job happiness and helps them trust and commit to the company more. On the other side, if the hiring process isn't well-managed, it can leave a bad impression on employees, which in turn lowers morale, which in turn affects productivity and the employees' desire to help the company succeed (Kamel, 2019).

Onboarding and Training: The success of the onboarding and training phase is directly related to the success of the recruitment process. When new hires are well-prepared and given the tools they need, they may swiftly adapt to their positions and start making a positive impact. Ensuring that new hires are in sync with the organization's values and goals through a well-designed recruitment process streamlines the onboarding process. On the flip side, inefficient or hastily conducted onboarding might cause learning curves and decreased productivity due to incomplete or poorly executed processes (Ozkeser, 2019).

*Retention and Turnover:*The success of the onboarding and training phase is directly related to the success of the recruitment process. When new hires are well-prepared and given the tools they need, they may swiftly adapt to their positions and start making a positive impact (Kumar, 2022). Ensuring that new hires are in sync with the organization's values and goals through a well-designed recruitment process streamlines the onboarding process. On the flip side, inefficient or hastily conducted onboarding might cause learning curves and decreased productivity due to incomplete or poorly executed processes (AKPAN *et al.*, 2023).

Benefits Of Optimization Recruitment Process

Employee Benefits and Compensation

Human resources professionals are responsible for designing and overseeing pay plans. Benefits such as healthcare, retirement plans, and stock options are part of these packages, which may also contain wage and bonus schemes. The goal of these plans is to attract and keep the best and brightest workers. The modern HR system is based on compensation and benefits for employees. The goal of using these strategies is to help businesses attract, motivate, and hold on to top talent. Base salary, bonuses, commissions, and stock options are all forms of monetary reward that employees receive as compensation for their job. Paid time off, retirement plans, health insurance, and wellness programs are examples of employee benefits, which are described as advantages that are not monetary. It was written by Beck and Gerhart in 1996 (Zaharee*et al.,* 2018).

When taken as a whole, they provide a comprehensive benefits package that does more than just reward employees for their efforts; it also cares for their well-being and health. Successful compensation and benefits plans are

critical for attracting and retaining top talent, as well as for keeping current employees happy and fulfilled in their work. In today's competitive employment market, organizations that provide competitive wage and benefits packages are better able to recruit and keep talented individuals. This, in turn, helps these organizations succeed and endure in the long run. Consequently, HR strategies must include the management of employee compensation and benefits. Finding a happy medium between employee needs and the needs of the business in terms of both financial goals and market competitiveness is essential (Allal-Chérif *et al.,* 2021).

Performance Appraisals and Feedback

When it comes to establishing performance appraisal systems that facilitate frequent feedback on work, the creation of performance objectives, and the promotion of professional development for employees, human resources play a key role. Key components of HR operations that centre on evaluating and improving employee performance within a company are performance assessments and feedback (Islami *et al.,* 2018).

An effective system of performance reviews and feedback can help a company achieve several important goals. Decisions about pay increases, bonuses, and promotions, as well as the alignment of individual objectives with corporate objectives, are based on these. Furthermore, regular feedback has the potential to cultivate an environment that values accountability, employee participation, and development. Human resources policies motivate employees to give their all and help the company succeed by highlighting the importance of performance reviews and feedback (Patra and Dash, 2023).

Workplace Diversity and Inclusion

Open and diverse recruiting strategies, diversity education, and the monitoring of pertinent diversity metrics are all examples of human resource practises that aim to enhance inclusion and diversity. Creating a workplace that values and honours its diverse personnel has been a priority for modern human resource (HR) practices. Diversity manifests itself in countless ways, including but not limited to racial/ethnic/sexual orientation/ability categories (Cletus *et al.,* 2018).

In contrast, inclusion is when companies actively seek to build a workplace where employees from diverse backgrounds (personal and professional) can thrive by being heard, valued, and supported in their contributions. This sector of human resource strategy creates policies, plans, and projects to diversify the company's candidate pool and workplace because it recognizes the importance of a diverse and inclusive workforce (Chaudhry *et al.,* 2021).

Diversity and inclusion initiatives should be prioritised by organisations for ethical and competitive reasons. They open our eyes to new possibilities, encourage us to think beyond the box, and push us to make more daring decisions. In addition, businesses are better able to connect with and meet the needs of their markets when their teams reflect the diversity of their customers and clients (Fine *et al.,* 2020).

Workforce Analytics and HR Metrics

A detailed discussion of key HR variables follows, including engagement level of employees, cost per hiring, and turnover rate. Human resource metrics and workforce analytics are powerful tools that help companies make data-driven decisions. The abundance of employee-related data collected by modern organizations can be leveraged in workforce analytics to enhance HR management in several ways. Human resource metrics, on the other hand, comprise the systematic tracking of KPIs related to HR activities and outcomes (Durai *et al.,* 2019). Human resource managers can evaluate the efficacy of their initiatives by following these protocols. Several parts of the recruiting process can be assessed with workforce analytics, such as future demand, employee happiness, and retention rates.

Business objectives, resource allocation, and human capital management can all be enhanced with the use of HR analytics and metrics. In today's world, when organizations rely heavily on data-driven decisions, HR metrics and workforce analytics have become essential tools for HR professionals who want to make a bigger impact on the bottom line (Kumar and Reddy, 2019).

Employee Engagement and Satisfaction

Human resource strategies that aim to increase employee engagement and job satisfaction could incorporate staff surveys, feedback channels, and initiatives to promote a better work-life balance. Human resources (HR) policies that aim to provide a positive and fulfilling work environment for employees, value employee engagement and well-being. How much a person cares about their job and the success of their employer is what the phrase "employee engagement" refers to (Arifin *et al.,* 2019).

Conversely, job satisfaction is a measure of how content employees are with many aspects of their professions,

including their duties, compensation, possibility for advancement, and sense of physical and emotional safety. In this field of human resources, methods are developed to make employees feel valued, motivated, and a part of the company's success. Job satisfaction and investment in one's work increase the likelihood that an employee will be loyal to one's employer, creative, and productive (Riyanto *et al.,* 2021).

To gauge and enhance employee engagement and happiness, HR professionals apply a variety of methods, including regular feedback systems, surveys, reward programs, and programs that promote work-life balance and employee well-being. By prioritizing employee enthusiasm and contentment, the approach may lead to increased retention, which in turn could reduce recruiting and training expenses (Al-dalahmeh*et al.,* 2018). Not only does this help recruit top talent, but it also makes the organization more appealing to potential employees. In today's competitive labour market, HR practices that focus on employees' satisfaction and involvement are more significant due to the influence they have on the growth and success of organisations over the long term (Soni, 2024).

The optimization of recruiting procedures is not the only factor that contributes to greater levels of productivity in the information technology industries in Delhi; other factors, such as employee training and development and the talent management model, are also significant (Memon *et al.,* 2021).

Employee Training and Development

Goldstein and Latham both agree that training is the process by which workers systematically get the KSAs (knowledge, skills, and attitudes) needed to do their jobs well and improve their performance on the job. Training has to be well-planned and executed in order to effectively transfer new information and skills while also meeting the needs of the organisation and its employees. Assuming the skills learnt in training are applicable on the job, employees' performance will improve when training leads to increased knowledge and the development of relevant abilities (Ozkeser, 2019).

Assuming the position is strategically aligned to the needs of the organisation, training should lead to improved performance in areas like productivity, quality, and services. If employees' desired outcomes are also met, the organization will achieve its desired outcome—staff retention. It has already been mentioned that training helps emphasize the importance of the employee feeling like a valued member of the organisation. Training is an investment in the employee's future by the functional department (Sung and Choi, 2018). A good training program can help employees focus less on pay, benefits, and perks by creating a supportive workplace and opening doors to promotion. Further, Deo argued that training is an effective way to increase employee productivity and loyalty among workers (Deo and Sharma, 2023).

The Talent Management Model

Organizations use the Talent Management Model as a guide to find, hire, train, engage, and keep the people who will help them achieve their goals and stay ahead of the competition. Several important steps and parts make up this model. For businesses looking to get the most out of their human resources, the Talent Management Model is an indispensable guide (Kamel, 2019). To achieve organizational goals and keep a competitive advantage in the ever-changing business environment, it is vital to invest in the growth, development, and job happiness of employees. This is because employees are a precious resource. Organizations may establish a culture of innovation and excellence and secure their success for the long term by applying this strategy. Optimizing an organization's human capital over the employment lifetime is the goal of ADP's Talent Management framework for 2023. This structure includes seven essential steps: (ADP, 2023).

*Recruit:*Talent management begins with finding and enticing outstanding talent. To simplify the hiring process, ADP stresses the need to use data-driven insights and technology. Employers can find qualified applicants who also fit in with the company's values and culture by utilising analytics and technologies powered by artificial intelligence.

*Hire:*The next step is to begin the employment process once qualified individuals have been located. The importance of a clear and streamlined hiring procedure is brought to light by ADP. This involves doing things like making sure applicants are happy and getting their feedback quickly during the employment process. Emphasis is also placed on effective onboarding to facilitate new hires' seamless integration into the organization.

*Develop:*The Talent Management framework at ADP places a strong emphasis on developing talent. It is highly recommended that companies offer their staff opportunities for ongoing learning and professional development. In order to assist employees, in achieving their maximum potential, this encompasses individualized development plans, training programs, mentoring, and coaching. Technology plays a crucial role in providing personalized

learning experiences, according to ADP.

*Engage:*According to ADP, employee engagement is one of the most important aspects of talent management. When workers are enthusiastic about what they do for a living, they are more willing to go above and beyond, which benefits their company. To measure and enhance employee engagement, ADP suggests employing feedback mechanisms, engagement questionnaires, and regular communication.

*Perform:*Within ADP's framework, performance management is viewed as a continual and ever-changing procedure. As an alternative to yearly performance reviews, ADP promotes ongoing goal-setting and feedback. To track and enhance performance in real-time, organizations might utilize technology and data analytics (ADP, 2023).

*Recognize:*One of the most important parts of talent management is recognizing employees. ADP suggests that businesses have frequent events to honor employees for their hard work and successes. A worker's performance and contributions should dictate the kind of recognition they receive, which might range from monetary bonuses to public compliments.

*Plan:*As part of their personnel management strategy, ADP places a strong emphasis on career development and succession planning. Recognising individuals with great potential and providing them with well-defined career routes is highly recommended. To avoid disruptions when important roles are filled, succession planning should be in place (Urme, 2023).

Review Of Literature

Ifeanyichukwu and Haido (2024) found that there were several significant obstacles to increased productivity in the IT business, including unscrupulous hiring practices, a lack of respect for due process, an unhealthy work environment, inadequate professional development opportunities, and unnecessary government meddling. Organizations should, therefore, ensure that the formal and informal definitions of recruitment and selection were properly understood and used.

Sinha and Sinha (2023) stated that Human resource analytics was a relatively new tool for improving and capitalising on HR for business purposes. Human resource analytics referred to the practice of gathering and analysing data on talent with the goal of enhancing key talent and business results. Initially, HR-analytics was only used by the Western IT sector, but it has recently started to make its way into the Indian IT sector as well. Together with HR directors, HR analytics professionals gather data to help with personnel decisions, streamline workforce operations, and create a better work environment for employees. In accordance with the organization's rules and goals, HR analysts must identify and resolve HR-related issues.

Bhardwaj and Jain (2023) said that the expansion of India's economy may be attributed largely to the country's small and medium-sized businesses. But these days, there were a lot of problems with their operations, such as a lack of capital, a lack of knowledge about government-supported schemes, a high turnover rate among employees, etc. For this exploratory study, the researchers focused on small and medium-sized enterprises (SMEs) in the Delhi-National Capital Region (NCR) that produce electrical goods. They gathered data on four HR practices—e-Recruitment, talent management, performance management, and employee empowerment—that were considered to be modern in nature. Each of the four chosen Modern HR practices or conceptions has been represented by twenty-six pieces. There was just one dependent variable, and that was the productivity of SMEs, which was represented by seven outcome-based activities. One way for determining which HR strategy has the greatest impact on boosting SMEs' productivity is the PLS-SEM methodology, a multivariate analytic tool. In terms of modern HR practices, data analysis showed that employee empowerment has the greatest effect on boosting productivity in SMEs. Through the establishment of a correlation between the results and a sufficient level of productivity, this study was aiding SMEs in handling the issues they were facing and served to emphasise the importance of incorporating these HR practices into their workplace.

Urme (2023) found that employee retention was a top priority for organisations in today's cutthroat business environment. There had been a lot of focus on talent management strategies as potential answers to this issue. A concise overview of the effects of talent management strategies on staff retention is provided in this article. The article covered a wide range of strategies, including thorough hiring processes, programmes for employee training and development, ways to measure performance and provide feedback, competitive compensation and benefits, and the promotion of a healthy work environment. In order to increase production, decrease turnover costs, and cultivate a more engaged and committed workforce, these strategies were essential, as the findings show. In order

for businesses to create an inviting and satisfying work environment that attracts and retains employees who were a part of the company's success in the long run, this article offered some practical strategies for managing personnel.

Singh (2019) asserted that companies understand that their people were their most valuable asset and that they could not succeed without exceptional workers. Businesses rely on their competent and talented workers, so it was important to find ways to attract them and keep them around. The IT industry in particular has the difficulty of maintaining a competent and skilled staff in industries that operate in extremely unpredictable and changing contexts. Attracting and retaining potential important talent required a focus on what practiced and methods could implement. The purpose of this research was to catalogue the methods used by India's information technology (IT) companies to hold on to their best employees, as well as to ascertain the rationale behind and effectiveness of talent management initiatives.

Sangeetha (2010) stated that new recruitment techniques were necessary due to the dynamic nature of the business landscape and the intense competition for talent. Under these conditions, human resources play a crucial role in every company. Strategic hiring that increases ROI and the organization's economic sustainability was of utmost importance due to the fact that it has a substantial influence on ROI and the company's performance in the marketplace. A company's ability to attract, hire, and retain top personnel was directly correlated to its ability to gain a competitive edge and achieve unparalleled success in the marketplace.

Research Methodology

Methodology in research is the method by which a researcher plans and conducts a study into a certain problem. A clearly defined research technique serves as the foundation for the entire research process. It explains how to collect relevant data, test hypotheses, and reach conclusions. It also tackles sample concerns, data gathering procedures, data analysis methodology, and ethical factors to consider during the study process.

The primary statement of the study problem is based on the shortage of such elements of literature, which could aid in developing a knowledge of how optimizing recruitment processes affects productivity in the Delhi NCR IT sector. As a result, the major statement of this research problem is based on the answer to the query concerning this, as well as aiming to cover the gap of reviewing literature in the study field of research activity. The preceding research questions are taken from the outline of the problem above.

i. How do effective recruitment strategies influence the productivity of employees in the IT sector?
ii. How does utilizing diverse recruitment sources enhance the quality of hires and subsequently improve productivity in the IT sector?
iii. What impact do comprehensive candidate assessment methods have on employee productivity in the IT sector?
iv. How does the use of advanced recruitment technologies influence employee productivity in the IT sector?
v. How do effective employee retention strategies mediate the relationship between recruitment processes and long-term employee?

Objectives of the Study

Objective 1: To evaluate the impact of effective recruitment strategies on employee productivity in the IT sector.

Objective 2: To assess the effect of using diverse recruitment sources on the quality of hires and their productivity in the IT sector.

Objective 3: To determine the influence of comprehensive candidate assessment methods on employee productivity in the IT sector.

Objective 4: To examine the effect of advanced recruitment technologies on employee productivity in the IT sector.

Objective 5: To investigate the mediating role of effective employee retention strategies in the relationship between recruitment processes and long-term employee productivity in the IT sector.

Hypothesis Formulation

Based on the above research problems and research questions following hypothesis are framed:

H1: Effective recruitment strategies positively influence the productivity of employees in the IT sector.

H2: Utilizing diverse recruitment sources (e.g., online job portals, and employee referrals) enhances the quality of hires and subsequently improves productivity.

H3: Comprehensive candidate assessment methods (e.g., technical tests, and behavioral interviews) positively impact employee productivity.
H4: The use of advanced recruitment technologies (e.g., AI-driven applicant tracking systems) positively influences employee productivity.
H5: Effective employee retention strategies positively mediate the relationship between recruitment processes and long-term employee productivity.

Research design

The study employs a quantitative research methodology as well as primary data collection techniques. The quantitative research methodology is a systematic and evidence-based method for gathering, analyzing, and interpreting numerical data in the social sciences and other domains. The research aims to analyze the optimization of recruitment processes for greater productivity in the Delhi-NCR IT sector.

Data Collection

The study's primary data was acquired by distributing a structured questionnaire to a sample of HR professionals and recruiters from IT organisations in the Delhi-NCR region. The survey seeks quantitative responses to analyse how effective recruitment strategies affect staff productivity, the improvement of higher quality through diversified recruitment sources, and the impact of comprehensive applicant assessment methods on productivity. The convenience sampling technique was used to pick HR professionals and recruiters from IT organisations in the Delhi-NCR region. The researcher created a systematic questionnaire to collect personal information from human resource experts and IT company recruiters. The questionnaire will include two parts. The first section examines the respondents' demographics and characteristics. The second section will look at the variables used to evaluate the optimisation of recruitment processes for increased productivity. The questionnaire was based on five Likert scale items and included closed-ended statements/questions to gather useful information for primary quantitative data analysis. Each item was evaluated using a five-point Likert scale ranging from 1 to 5, or "strongly disagree" to "strongly agree."

Sample Size

A standardised questionnaire and convenience sample technique were used to collect data from 300 HR professionals and recruiters from various IT organizations in the Delhi-NCR region. A total of 420 questionnaires were distributed through LinkedIn and other social media platforms to HR professionals and recruiters from various IT organizations in the Delhi-NCR region. 316 responses were received out of 420 questionnaires, accounting for 75.23 percent of the total response rate. However, due to missing or erroneous details, 16 replies were invalid.

Data Analysis Method

The current study used a structural model to demonstrate the connection between the dependent and independent variables, as well as to examine the validity and reliability of the measurement model. SEM was used to analyse the complicated interactions between variables such as recruitment strategies, candidate assessment methods, sophisticated technology, and employee retention strategies, focusing on their direct and indirect effects on productivity. Regression analysis with Smart PLS 4.0 clarified and strengthened these associations, emphasising crucial factors that have a major impact on IT productivity. This integrated approach not only gave a thorough understanding of effective recruitment procedures but also validated the hypothesis about their effects on organisational efficiency in Delhi-NCR's IT industry.

Data Analysis and Results

Demographic Profile of the Respondents

Table i: Demographic Profile of Respondents

S No.	Demographic Characteristics	Category	N	%
1	Gender	Female	212	70.7%
		Male	88	29.3%
2	Age	21-30 years	75	25.0%
		31-40 years	116	38.7%
		41-50 years	53	17.7%
		Above 50 years	56	18.7%

3	**Educational Qualifications**	**Bachelor's degree**	98	32.7%
		Master's degree	101	33.7%
		PhD or equivalent	101	33.7%
4	**Years of Experience in HR/Recruitment**	**Less than 1 year**	111	37.0%
		1-5 years	98	32.7%
		6-10 years	39	13.0%
		More than 10 years	52	17.3%
5	**Current Job Title/Position**	**HR Generalist**	64	21.3%
		HR Manager	57	19.0%
		Recruitment Manager	61	20.3%
		Talent Acquisition Specialist	61	20.3%
		Other	57	19.0%
6	**Location within Delhi-NCR**	**Delhi**	56	18.7%
		Faridabad	59	19.7%
		Ghaziabad	65	21.7%
		Gurgaon	56	18.7%
		Noida	64	21.3%

Table i shows the demographic characteristics of respondents working in HR and recruitment in Delhi-NCR. The gender distribution reveals a higher proportion of females (70.7%) than males (29.3%). The age distribution shows that the largest groups are 31-40 years (38.7%) and 21-30 years (25.0%), with a significant number over 50 years (18.7%). Bachelor's (32.7%), Master's (33.7%), and PhD or equivalent degrees (33.7%) are the three most common educational levels. In terms of years of experience in HR/recruitment, a considerable number have less than 1 year (37.0%) and 1-5 years (32.7%), whereas fewer respondents have 6-10 years (13.0%) or more than 10 years (17.3%). Job titles vary, but the most popular are HR Generalists (21.3%), Recruitment Managers (20.3%), Talent Acquisition Specialists (20.3%), and HR Managers (19.0%). Respondents are geographically distributed among Delhi (18.7%), Faridabad (19.7%), Ghaziabad (21.7%), Gurgaon (18.7%), and Noida (21.3%). This profile gives a thorough view of the demographics of HR and recruitment professionals in the Delhi-NCR region, reflecting variety in age, gender, educational background, experience levels, job categories, and geographic distribution.

Assessment of Measurement Model

Smart PLS 4.0 is used to measure and analyse data. The study thoroughly investigates internal consistency and reliability, indicator validity, convergent validity, and discriminant validity and they all are summarised below.

Table ii: Construct Reliability and Validity

S No.	Construct	Items	Standardized loadings	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
1	**Recruitment Strategies**	**RS1**	0.848	0.892	0.919	0.695
		RS2	0.811			
		RS3	0.841			
		RS4	0.831			
		RS5	0.838			
2	**Diverse Sources of Recruitment**	**DSR1**	0.883	0.899	0.924	0.708
		DSR2	0.870			

		DSR3	0.820			
		DSR4	0.798			
		DSR5	0.834			
3	**Assessment Methods**	**AM1**	0.833	0.866	0.908	0.713
		AM3	0.827			
		AM4	0.921			
		AM5	0.793			
4	**Advanced Recruitment Technologies**	**ART4**	0.815	0.802	0.893	0.808
		ART5	0.976			
5	**Employee Retention Strategies**	**ERS3**	0.769	0.813	0.889	0.728
		ERS4	0.848			
		ERS5	0.935			
6	**Recruitment Processes**	**RP1**	0.924	0.858	0.904	0.703
		RP2	0.789			
		RP3	0.821			
		RP4	0.812			
7	**Productivity**	**P1**	0.804	0.892	0.921	0.700
		P2	0.836			
		P3	0.773			
		P4	0.924			
		P5	0.840			

Table ii summarises the findings of a confirmatory factor analysis (CFA) that evaluated numerous constructs linked to recruitment techniques, assessment methods, advanced technologies, employee retention strategies, recruitment processes, and productivity. Each construct is made up of several things, with standardized loadings reflecting the strength of each item's link with its corresponding construct. Cronbach's Alpha coefficients assess the internal consistency dependability of each construct, with values greater than 0.70 suggesting adequate reliability (Cronbach, 1971). Cronbach's alpha values for constructs range from 0.892 to 0.802. Composite Reliability (CR) values examine construct reliability, with values greater than 0.70 indicating high reliability (Hair *et al.*, 2011). The CR values for the building range from 0.924 to 0.889. Hair *et al.* (2012) define Average variation Extracted (AVE) as the amount of variation extracted by each concept relative to measurement error. Values above 0.50 indicate good convergent validity. The AVE values for the build range from 0.695 to 0.808. Overall, the constructs generally demonstrate strong reliability and validity, which supports their usage in following analyses linked to optimising recruitment processes and increasing productivity within the Delhi-NCR IT sector.

Outer Loadings

Table iii: Outer Loadings of the Construct

	AM	**ART**	**DSR**	**ERS**	**P**	**RP**	**RS**
AM1	0.833						
AM3	0.827						
AM4	0.921						
AM5	0.793						
ART4		0.815					
ART5		0.976					
DSR1			0.883				
DSR2			0.870				
DSR3			0.820				
DSR4			0.798				
DSR5			0.834				

ERS3				0.769			
ERS4				0.848			
ERS5				0.935			
P1					0.804		
P2					0.836		
P3					0.773		
P4					0.924		
P5					0.840		
RP1						0.924	
RP2						0.789	
RP3						0.821	
RP4						0.812	
RS1							0.848
RS2							0.811
RS3							0.841
RS4							0.831
RS5							0.838

Table iii depicts the outer loadings for each indicator variable (AM1-5, ART4-5, DSR1-5, ERS3-5, P1-5, RP1-4, RS1-5) in relation to their respective latent variables (AM = Awareness, ART = Attitude, DSR = Decision Support, ERS = External Resources, P = Perceived Usefulness, RP = Relative Advantage, RS = Compatibility) in a structural equation model. These loadings indicate the strength of the link between each indicator and the related latent variable. Higher loadings indicate stronger correlations, implying that the indicators are accurate representations of their latent structures. For example, AM4 has a very high Awareness loading of 0.921, indicating that it accurately reflects the concept of awareness in the model. Similarly, ART5 has a high loading of 0.976 on Attitude, implying a substantial relationship between ART5 and the latent variable Attitude. These loadings are critical for assessing the validity and dependability of the measurement model, representing that the chosen indicators effectively measure their intended latent components.

Discriminant Validity

Heterotrait- Monotrait Ratio (HTMT) – Matrix

Table iv: Heterotrait-Monotrait Ratio (HTMT)

	AM	**ART**	**DSR**	**ERS**	**P**	**RP**	**RS**
AM							
ART	0.240						
DSR	0.547	0.388					
ERS	0.425	0.450	0.405				
P	0.081	0.128	0.187	0.092			
RP	0.382	0.485	0.450	0.778	0.125		
RS	0.547	0.374	0.520	0.406	0.172	0.465	

The HTMT ratio is used to determine discriminant validity, and it is based on an assessment of the correlation between components. Although the threshold for HTMT is a source of debate in the research, Kline (2011) advocated a threshold of.85 or lower (Kline, 2011). Table iv demonstrates the results of the Discriminant Validity "Heterotrait-Monotrait Ratio (HTMT)" test, which shows that the HTMT ratio is less than the threshold value of 0.85.

Fornell-Larcker Criterion

Table v: Fornell-Larcker Criterion

	AM	**ART**	**DSR**	**ERS**	**P**	**RP**	**RS**
AM	**0.845**						
ART	0.182	**0.899**					

DSR	0.477	0.356	**0.842**				
ERS	0.350	0.364	0.354	**0.853**			
P	0.067	0.125	0.183	0.080	**0.837**		
RP	0.330	0.399	0.397	0.849	0.112	**0.838**	
RS	0.477	0.348	0.211	0.350	0.163	0.406	**0.834**

When the square root of AVE for a concept is bigger than its relationship with all other concepts, we have demonstrated discriminant validity, as stated by Fornell and Larcker (1981). Table v illustrates the results of Discriminant Validity "Fornell and Larcker's criteria (FL)" for Indicators, which show that the square root of AVE for a construct is greater than its correlation with other constructs (Fornelland Larcker, 1981). As a result, it delivers strong support for the scenario of discriminant validity.

Table vi: Collinearity statistics (VIF)

	VIF
AM1	2.368
AM3	1.892
AM4	3.806
AM5	1.885
ART4	1.813
ART5	1.813
DSR1	3.202
DSR2	2.335
DSR3	2.119
DSR4	2.413
DSR5	2.121
ERS3	1.689
ERS4	1.968
ERS5	2.697
P1	2.147
P2	2.226
P3	2.057
P4	3.963
P5	2.289
RP1	3.146
RP2	1.801
RP3	2.020
RP4	2.172
RS1	2.506
RS2	2.410
RS3	2.721
RS4	1.942
RS5	2.258

Using the Variance Inflation Factor (VIF) statistic, multicollinearity among the indicators is examined. As per Hair *et al.* (2016), multicollinearity is not a serious subject when the VIF value is less than 5. Table vi summarizes the results of the Multicollinearity "Variance Inflation Factor" Indicator. As seen in Table vi, all of the study's VIF results fall below the threshold of 5.

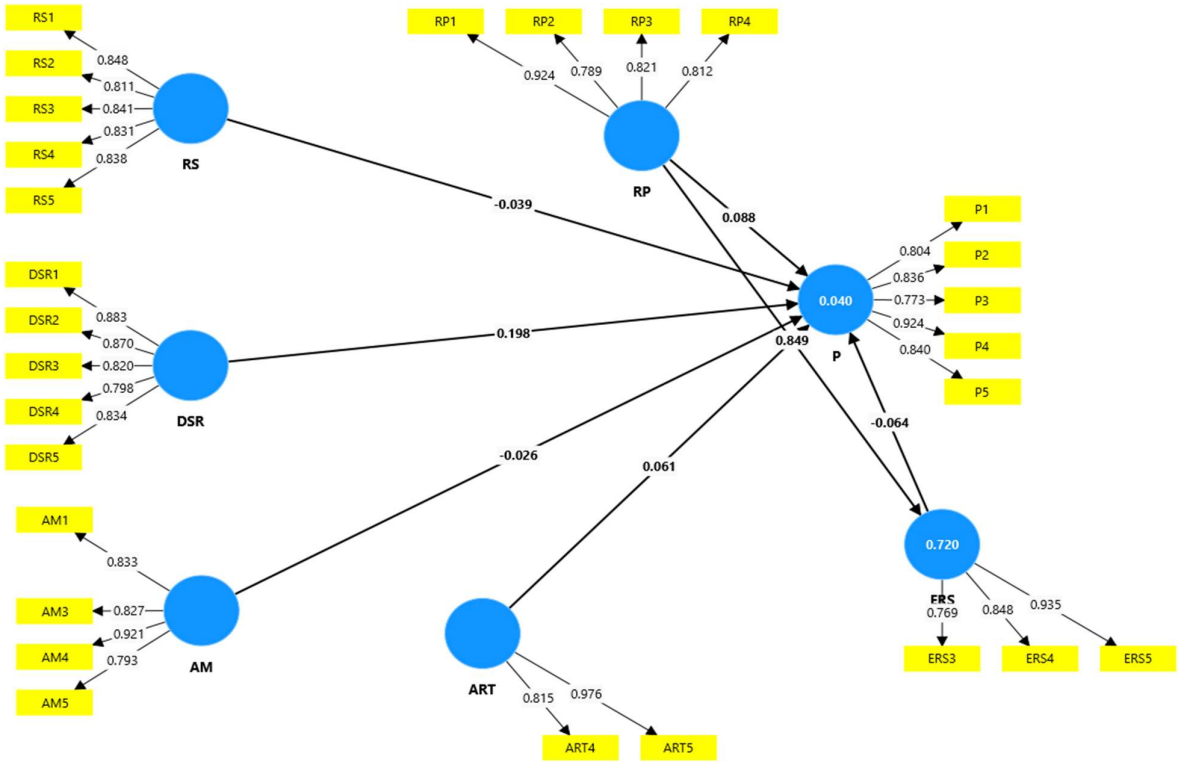

Figure i: Measurement Model

Measurement of Structural Model

The structural model incorporates all of the construct's elements and their established connections to one another. The structural model portrays the connection between the latent variables. The next step in structural equation modeling is hypothesis testing, which evaluates the hypothesized relationship. Two approaches used to establish the credibility of a structural model are examining the path coefficients and then performing hypothesis testing, both of which are explained in the following sections.

Model Fit

Table vii: Model Fit

	Saturated model	**Estimated model**
SRMR	0.053	0.054
d_ULS	1.127	1.168
d_G	0.714	0.717
Chi-square	1108.006	1111.312
NFI	0.821	0.820

According to Hair *et al.* (2014), an adequate fit requires an SRMR of less than 0.08 and an NFI closer to 1. Table vii displays the outcomes of the Goodness of Model Fit, which reveal that the SRMR is lower than the threshold acceptable value of 0.08 and the NFI is closer to 1.

R-Square

Table viii: R-Square

	R-square	**R-square adjusted**
ERS	0.720	0.720
P	0.640	0.621

The R Square statistic (s) measures how much variation in an endogenous variable is explained by an exogenous variable. As per Hair *et al.* (2011), R2 values of 0.75, 0.50, and 0.25 for endogenous latent variables can be broadly classified as significant, moderate, or weak. Table viii displays the R Square statistics, which reveal that the r-square value of Employee Retention Strategies is 0.720 and the r-square value of Productivity is 0.640, which is moderate.

Hypothesis Testing

It is usual practice to get a P value for each path coefficient when using PLS-SEM to test the hypothesis. Based on the researcher's knowledge of the path's direction and the corresponding coefficient's sign, this P value can be one-tailed or two-tailed (Kock, 2015).

H1: Effective recruitment strategies positively influence the output of employees in the IT sector.

H1 evaluates whether Effective recruitment strategies have a important impact on efficiency of employees in the IT segment. The results (table 9) revealed that Effective recruitment strategies have a significant effect on productivity ($\beta = 0.057$, $t = 0.649$ and, $p \leq 0.05$ i.e., 0.016).

H2: Utilizing diverse recruitment sources (e.g., online job portals, employee referrals) enhances the quality of hires and subsequently improves productivity.

H2 evaluates whether diverse recruitment sources have a significant impact on productivity. The results (table 9) revealed that diverse recruitment sources have a noteworthy effect on productivity ($\beta = 0.090$, $t = 0.958$ and, $p \leq 0.05$ i.e., 0.038).

H3: Comprehensive candidate assessment methods (e.g., technical tests, behavioural interviews) positively impact employee productivity.

H3 evaluates whether Comprehensive candidate assessment methods have a significant impact on employee productivity. The results (table 9) revealed that Comprehensive candidate assessment methods have a significant impact on employee productivity ($\beta = 0.040$, $t = 0.424$ and, $p \leq 0.05$ i.e., 0.046).

H4: The use of advanced recruitment technologies (e.g., AI-driven applicant tracking systems) positively influences employee productivity.

H4 evaluates whether advanced recruitment technologies have a significant impact on employee productivity. The results (table 9) revealed that advanced recruitment technologies have a significant impact on employee productivity ($\beta = 0.049$, $t = 0.781$, and, $p \leq 0.05$ i.e., 0.035).

H5: Effective employee retention strategies positively mediate the connection between recruitment processes and long-term workers' productivity.

H5 evaluates whether employee retention strategies mediate the association between recruitment processes and long-term employee productivity. The results (table 9) revealed that employee retention strategies mediate the connection between staffing processes and long-term employee productivity, ($\beta = 0.051$, $t = 0.647$ and, $p \leq 0.05$ i.e., 0.017).

Table ix: Hypothesis Testing

	Original sample (O)	**Sample mean (M)**	**Standard Deviation (STDEV)**	**T statistics (|O/STDEV|)**	**P values**
Effective Recruitment Strategies -> Productivity	0.057	-0.057	0.088	0.649	0.016
Diverse Recruitment Sources -> Productivity	0.090	0.091	0.094	0.958	0.038
Assessment Methods -> Productivity	-0.040	-0.039	0.071	-0.424	0.046
Advanced Recruitment Technologies -> Productivity	0.049	0.049	0.063	0.781	0.035
Recruitment Processes -> Employee Retention -> Productivity	0.051	0.051	0.078	0.647	0.017

Figure ii: Measurement Model

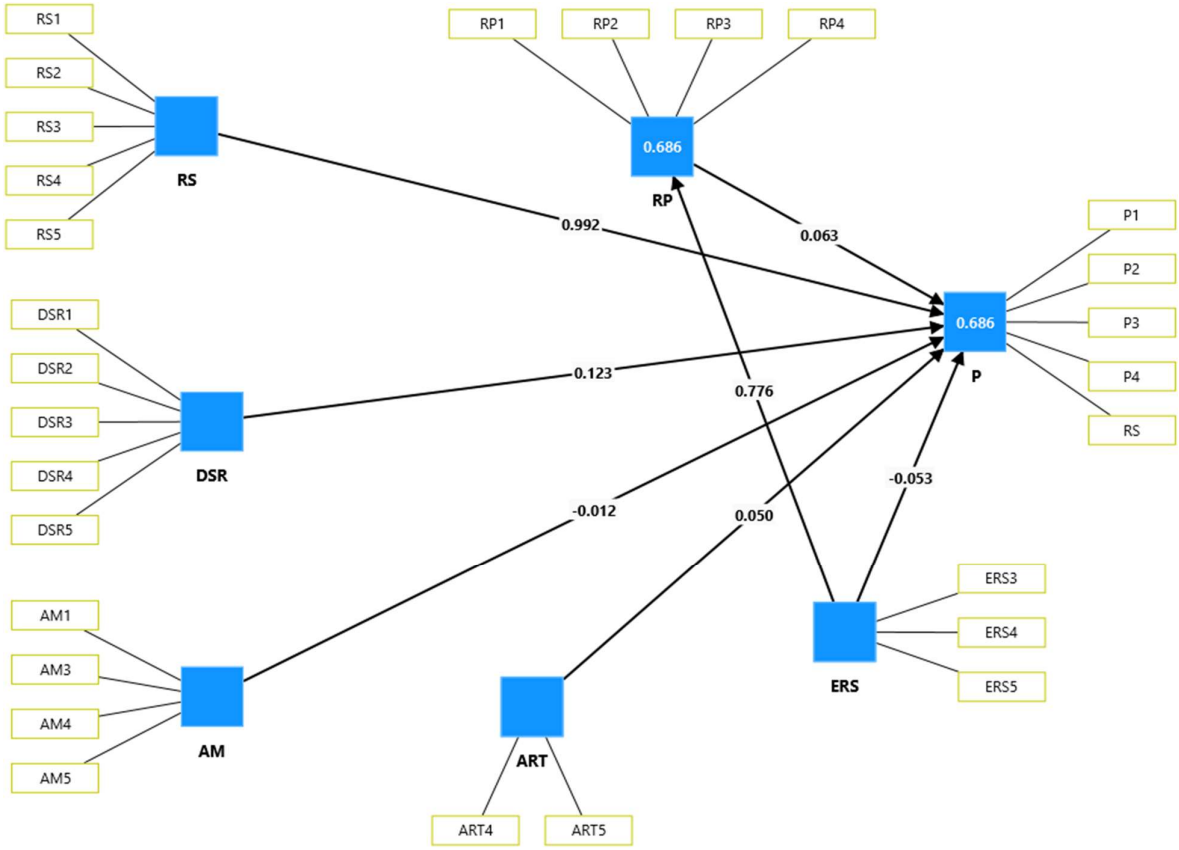

Figure iii: Structural model

Conclusion

The goal of this study was to examine how human resource optimization may boost productivity in the IT sectors in Delhi-NCR. The productivity of the IT sector in Delhi-NCR is significantly impacted by the recruitment process, according to the findings and outcomes. According to the findings, staff productivity in the IT sector is highly influenced by talent management, corporate culture, performance reviews and feedback, and training and development, performance and appraisal. Additionally, a positive association between employee productivity and efficient hiring procedures was discovered. The study highlights the advantages of matching recruitment process techniques with corporate culture and development activities to improve employee productivity and happiness, and it offers practical insights for IT companies operating in the Delhi-NCR region. By providing benefits of the recruiting process to HR professionals and organizations looking to increase productivity, the study adds to the body of knowledge that exists on talent management and the recruitment process. Thus, it is possible to conclude that the hiring process is crucial to an organization's general efficacy and output. Apart from selecting the best applicants, a well-managed hiring procedure creates the foundation for motivated and engaged staff members. On the other hand, ineffective or flawed hiring practices may hurt worker productivity. To boost productivity, it's critical to create effective recruitment strategies.

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