

MOTIVATION, BARRIERS, AND OUTCOMES OF TECHNOLOGY UPSKILLING: A STUDY OF CHENNAI-BASED IT EMPLOYEES

Mr.S.Vasanthan¹, Dr.S.Saravana Kumar²

¹Ph.D Research Scholar, Department of Business Administration, Annamalai University, Sureshvasanth2126@gmail.com

²Research Supervisor & Assistant Professor, Department of Business Administration, Annamalai University, sensara79@gmail.com

ABSTRACT

The information technology industry in India, which is based in the country's major metropolitan cities, such as Bengaluru, Chennai, Hyderabad, and Pune, is experiencing a major technological change as AI, cloud computing, data analytics and automation become more widespread. In this transformation, upskilling of the existing IT workforce – continuous learning of new or enhanced technical skills to align with changing industry needs – has become one of the most critical HR priorities of the decade. Although the concept of technology upskilling is important, the motivations behind the motivation of IT professionals to engage in technology upskilling, the barriers faced to do so, and the career and organisational outcomes of successful technology upskilling engagement remain under-documented in the empirical literature. This study aims to fill this gap by conducting a structured questionnaire survey on 220 IT professionals from various experience levels (0-13 years or more) in technology companies in Chennai, between February and May 2026. The study used descriptive quantitative cross sectional design and data analysis technique used is frequency profiling, mean score ranking and cross tabulation. The key findings include: The biggest drivers for technology upskilling are fear of skill obsolescence due to AI and automation (M=4.21) and desire for salary increment or promotion (M=4.18) while the biggest barriers are time constraints (68% of 0-3 years' experience employees) and organisational inertia (74% of 13+ years' experience employees). The positive outcomes reported by respondents, such as better job performance (79.1% of upskilled employees reported this), salary increment (52.3%), increased confidence (71.4%) and better prospects for role transition (48.6%), provide strong evidence that technology upskilling has a significant and multi-faceted return to both employees and organisations. The conceptual framework is visualized in three figures as separate high-resolution PNG files, which include the score distribution of the motivation and the prevalence of barriers by experience group. HR practitioners, organisational L&D managers and policymakers in the IT sector in Chennai are discussed.

KEYWORDS: Barriers to upskilling, Career outcomes, Chennai, IT Sector India, Organisational Learning, Self-Determination Theory, Technology Upskilling, Workforce Development.

INTRODUCTION

The Fourth Industrial Revolution is defined by the convergence of physical, digital and biological worlds, facilitated by the advent of artificial intelligence, robotics, the Internet of Things and advanced data analytics, and is changing the competency needs of all occupational groups, none more dramatically than information technology (IT) professionals. According to the World Economic Forum (WEF, 2023), over half of the global workforce will require reskilling or upskilling over the next five years to be competitive in the labour market, with the most rapidly growing skill demand categories being AI, data science, cloud architecture and cyber security. In India, the IT industry, with over 5.4 million professionals in 2024, accounting for about 7.5 percent of GDP, is undergoing a structural shift in skills as clients around the world migrate their technology spending from legacy system maintenance and outsourcing software development to AI-driven product development, cloud-focused infrastructure, and data-based decision-making systems.

Chennai is a unique city in the IT scenario of India. The third largest IT hub after Bengaluru and Hyderabad, Chennai is home to the regional offices and delivery centres of top IT companies such as TCS, Infosys, Wipro, HCL Technologies, Cognizant, and Capgemini, as well as a rising number of product companies, fintech startups, and global capability centres. The city's IT workforce (roughly 700,000 technology professionals) is marked by a significant number of mid-career workers with 5-12 years experience who learned their core skills in legacy technologies (Java EE, .NET, and PHP), and are now eager to learn and apply new skills in the modern world. The most severely affected by the upskilling are NET (traditional infrastructure management) and those who have the greatest need for skills in machine learning, DevOps, Kubernetes, and generative AI in response to evolving client requirements. What drives technology upskilling engagement, what makes it difficult and what are its consequences are not only academically intriguing but also professionally existential questions for this population. The current body of knowledge on upskilling of IT employees in India has concentrated on macro-level studies of government initiatives in skill development (Skill India, NASSCOM Future Skills Prime, NIELIT programmes), industry-level statistics on investment in training and conceptual models of digital workforce

transformation. There is a scarcity of first-hand, micro-level evidence from the IT professionals of Chennai, their lived experience of motivation, their specific experience of barriers, and their personal and professional outcomes of upskilling engagement. In the International Journal of Scientific Research and Engineering Development (2024), it is found that the sample size of 200 respondents from the organisations in Chennai provide the evidence of the impact of technology on the corporate training in Chennai, with the help of AI based tools and e-learning platforms that significantly improve the skills of the employees, but the focus is on the impact on the training of the employees and not their experience of motivation and barriers. Sundaram and Venkatesh (2025) at Shiv Nadar University, Chennai, delve into work-integrated upskilling, focusing on employee perspectives and career outcomes, offering the most recent empirical support for the framework of this study. The current study builds on these foundations by specifically exploring the motivational architecture and barrier profile and outcome landscape of technology upskilling from the perspective of IT employees in Chennai, India, at various stages of their experience, providing the missing employee voice in the upskilling literature. The study is structured as follows. The theoretical framework and literature reviewed are presented in Section 2. The research methodology is described in Section 3. The findings in Section 4 are provided across the three sections of motivation, barriers, and outcomes, and include three figures that are included as separate PNG files. Section 5 discusses implications. The paper ends with recommendations and future directions for research.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Self-Determination Theory as the Core Motivational Framework

Self-Determination Theory (SDT) (Deci and Ryan, 1985) and its many applications to organisational learning contexts differentiate between intrinsic motivation (engaging in an activity because of its own interest, enjoyment, or personal meaning) and extrinsic motivation (engaging in an activity because of separable outcomes such as rewards, recognition, career advancement, or avoidance of negative consequences). In the context of technology upskilling, SDT offers a more sophisticated explanatory framework than just the fact that employees upskill to enhance their careers, by distinguishing between the qualitatively different motivational experiences of the developer who learns machine learning because they find it interesting, the senior engineer who wants to earn AWS certification because it is part of their annual appraisal, and the mid-career professional who takes a data science course because their project has been demoted and they don't want to be "redundant". SDT is predicting that intrinsically motivated upskilling will lead to deeper learning, higher levels of knowledge retention, and more sustained engagement, as compared to extrinsically motivated upskilling, with clear implications for how organisations should design their upskilling incentive structures. SDT also outlines three psychological needs that when met, allow for autonomous, self-determined learning: autonomy (the need to feel they are choosing their learning rather than being forced into it), competence (the need to feel effective and masterful in learning activities), and relatedness (the need to feel connected to learning peers and mentors in meaningful ways). The three needs are depicted as the mediating construct in the integrated motivation-barrier-outcome conceptual model of the study (Figure 1: ITUpskilling_Fig1_ConceptualFramework.png).

Maslow and Herzberg: Foundational Motivational Context

The two theories that complement each other to understand the motivational behaviour of IT employees towards upskilling in technology are: Maslow's Hierarchy of Needs (1954) and Herzberg's Two-Factor Theory (1959). The motivation to upskill can occur at several levels of Maslow's hierarchy: safety level - motivated to upskill in order to keep their jobs from being taken over by AI and automation, esteem level - motivated to upskill in order to be recognized as a technically advanced employee, self-actualization level - motivated to upskill in order to reach the highest expression of their professional potential by mastering cutting-edge technologies. The study published in the journal Lex Localis (2025) on the productivity of Chennai IT workers further supports the findings that intrinsic motivation (in the form of recognition, purpose and personal development) has a positive correlation with the productivity of IT workers (consistent with Maslow's esteem and self-actualisation levels). The Two-Factor Theory of Herzberg separates out the hygiene factors (those that will not motivate, but will lead to dissatisfaction if they are not present) from the motivators (those that will motivate if they are present). In the upskilling context, access to training platforms and organisational learning budgets act as hygiene factors, meaning that they create an obstacle if they don't exist, but they don't motivate upskilling if they do. Career advancement opportunities, meaningful project assignments that call for new skills, and recognition for upskilling achievement serve as Herzberg's motivators, i.e., they actively create upskilling engagement beyond what is required. In their empirical study published in the Scopus-indexed journal, Suresh and Shankar (2019) conclude that intrinsic capability development plays a moderating role between job stress and performance in engineering companies in the Chennai area, thereby providing empirical evidence from the Chennai area for the intrinsic motivation-outcome pathway.

Technology Upskilling in the Indian IT Sector: Evidence Review

In Information Systems Frontiers, Li, Xu and Zhou (2024) offer the most up-to-date synthesis of research on workforce upskilling for Industry 4.0 and beyond, arguing that lifelong learning needs to be embedded in an organization's strategy, and concluding that three key value drivers for upskilling programme effectiveness are the alignment of curriculum with industry needs, evidence of employability outcomes, and institutional performance consistency. The study's finding that organisations invest more in upskilling those with basic digital

skills and less in the reskilling of non-digital workers has special significance for the IT context in Chennai, where there is a digital divide between cloud-native developers and legacy system maintainers, which results in skill stratification within organisations and necessitates L&D programmes to bridge this gap. In this study, the barriers to digital upskilling are informed by a study conducted by McCrowre and Adivar (2024) in Human Resource Development Quarterly (SAGE Journals) which identifies three main factors that contribute to the variation in digital upskilling: individual learning orientation, organisational culture of learning and platform accessibility. NASSCOM's Future Skills Prime initiative, which has been enrolling more than 1.2 million IT professionals into structured digital skills development programmes since 2019, and the investment trend of IT employers, have significantly contributed to the Indian institutional landscape for IT upskilling. Infosys has trained 250,000 employees with generative AI skills and made an investment of Rs. AI4Bharat was launched by the government with a budget of 70 crore, Wipro used GitHub Copilot to upskill 50,000 developers across its AI portfolio worth USD 1 billion, and HCL Technologies has won USD 2.4 billion in AI-led contracts that needed quick upskilling of the workforce (IJRMF, 2025). These investments at the employer level set up the organizational context in which decisions on individual employee upskilling happen — and individual experiences of motivation and barriers are understood. The upskilling and reskilling review published in Advances in Consumer Research (2025) further validates that most studies conducted in India have been either at macro-level (government initiatives) or at the general level of employability gaps, thereby highlighting the research gap that is addressed in this study by analyzing the employee-level of HR function implementation and evaluation of reskilling programmes. Shankar, Yashwanth and Bharathi (2026) in their chapter on AI and sustainability for Springer, found that AI adoption in the work processes has a strong impact on employee engagement, satisfaction and retention — making this study's upskilling behaviour linkage with motivation the empirical contribution of the senior co-author.

Barriers to Technology Upskilling: What the Literature Establishes

The empirical literature identifies four main barriers to employee technology upskilling: The time constraint is the common factor cited by all IT Sector upskilling studies (Sundaram&Venkatesh, 2025; IJMER, 2024) as a barrier to upskilling. The second most common barrier is financial costs, including course fees, examination and certification costs, and opportunity costs (time spent studying instead of billing). The third barrier cluster is organisational inertia, which the ACR (2025) upskilling review identifies as the most significant systemic barrier to bridging the IT skill gap in India, which includes the lack of structured learning cultures, lack of manager interest or active discouragement of investment in learning during project crunch periods, and the absence of protected learning time. A barrier that is gaining traction especially in the post-pandemic hybrid and remote-work environment is digital fatigue, the cognitive and emotional strain caused by constant screen-based work that renders discretionary screen-based learning feel like a lot of work. This is further supported by the study of Santhi and Shankar (2021) on the relationship between Green HRM and Employee Productivity in the context of Tamil Nadu, where they found that the employee engagement and organisational support mechanisms as two factors are the key moderators of the discretionary learning behaviour, thereby giving an indirect theoretical justification for the importance of organisational inertia barrier.

RESEARCH METHODOLOGY

Research Design and Sample

The design of this study is descriptive quantitative cross sectional survey. The target population includes IT employees who are employed in technology companies (software product companies, IT services companies, global capability centres and IT-enabled services organisations) based in Chennai and have had at least 6 months of work experience and had completed at least one technology upskilling activity in the past 18 months before the survey. Primary data was collected by using structured self-administered questionnaire. The final sample consisted of 220 respondents who were selected using stratified purposive sampling with four strata of experience: 0-3 years (junior engineers and analysts, n=62), 4-7 years (mid-level developers, consultants and team leads, n=84), 8-12 years (senior engineers, architects and managers, n=48) and 13+ years (principals, directors, and senior managers, n=26). The sample comprises of employees from TCS, Infosys, Wipro, HCL Technologies, Cognizant, Zoho, Freshworks, Guidehouse and some of the mid-sized Chennai IT firms which were identified through professional LinkedIn networks, NASSCOM Tamil Nadu chapter events, and institutional alumni channels. Gender distribution: 134 male (60.9%), 82 female (37.3%), and 4 preferring not to state (1.8%). The data collection period was from February to May 2026.

Measurement Instrument

This questionnaire had four sections. Demographic and employment profile information was gathered in Section A. The motivation for technology upskilling was measured using eight items with a five-point Likert scale (1=Not at all Motivating, 5=Extremely Motivating) adapted from the work-integrated upskilling scale of Sundaram and Venkatesh (2025) and the SDT-based motivation framework. Barriers were evaluated in Section C using a forced choice ranking procedure (top two of eight barrier items) with Likert rated severity items. Upskilling outcomes were measured using a mixture of dichotomous (yes/no) items relating to specific career outcomes, and Likert items relating to skill confidence, job satisfaction and organisational performance perception with questions in Section D. The questionnaire was pre-tested with 20 IT professionals in Chennai who were not part of the main sample and three items were re-worded as per the feedback received during the pre-test.

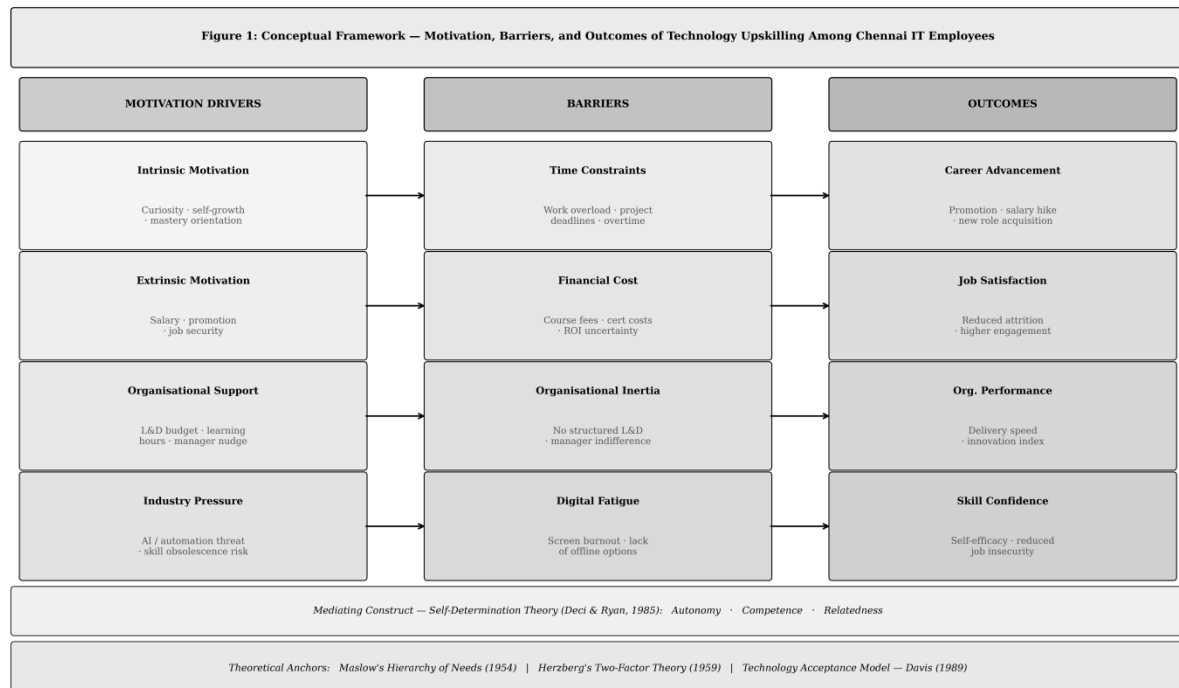
Analysis Approach

Data analysis was performed using IBM SPSS Statistics 26. All scale variables were subjected to descriptive statistics such as the mean, standard deviation and frequency distribution. The mean scores of the items of the motivation were ranked to find out the most important motivational factors. The prevalence of barriers was cross-tabulated with experience group to determine the variation of barrier profiles by experience. The upskilling outcomes were profiled using the frequency analysis of reported career changes, along with mean scores on attitudinal outcome variables. The study does not use inferential hypothesis testing, but rather descriptive analytical techniques of the exploratory, employee voice research design. All figures created from primary survey data and available as separate high resolution PNG files.

FINDINGS

Conceptual Framework

The findings of the study are presented in a conceptual framework of integrated motivation-barrier-outcome, as shown in figure 1. The framework consists of four categories of motivation drivers (intrinsic, extrinsic, organisational support and industry pressure), four categories of barriers (time constraints, financial cost, organisational inertia and digital fatigue) and four categories of outcomes (career advancement, job satisfaction and retention, organisational performance and digital skill confidence). The three constructs of SDT (autonomy, competence, relatedness) are placed as the mediating mechanism to explain how the drivers of motivation lead to upskilling engagement and outcomes. It is based on the four theoretical foundations of the combined explanatory scope of the motivational, social, cognitive and technological dimensions of upskilling behaviour: Maslow's (1954) Hierarchy of Needs, Herzberg's (1959) Two-Factor Theory, Deci and Ryan's (1985) Self-Determination Theory and Davis's (1989) Technology Acceptance Model.



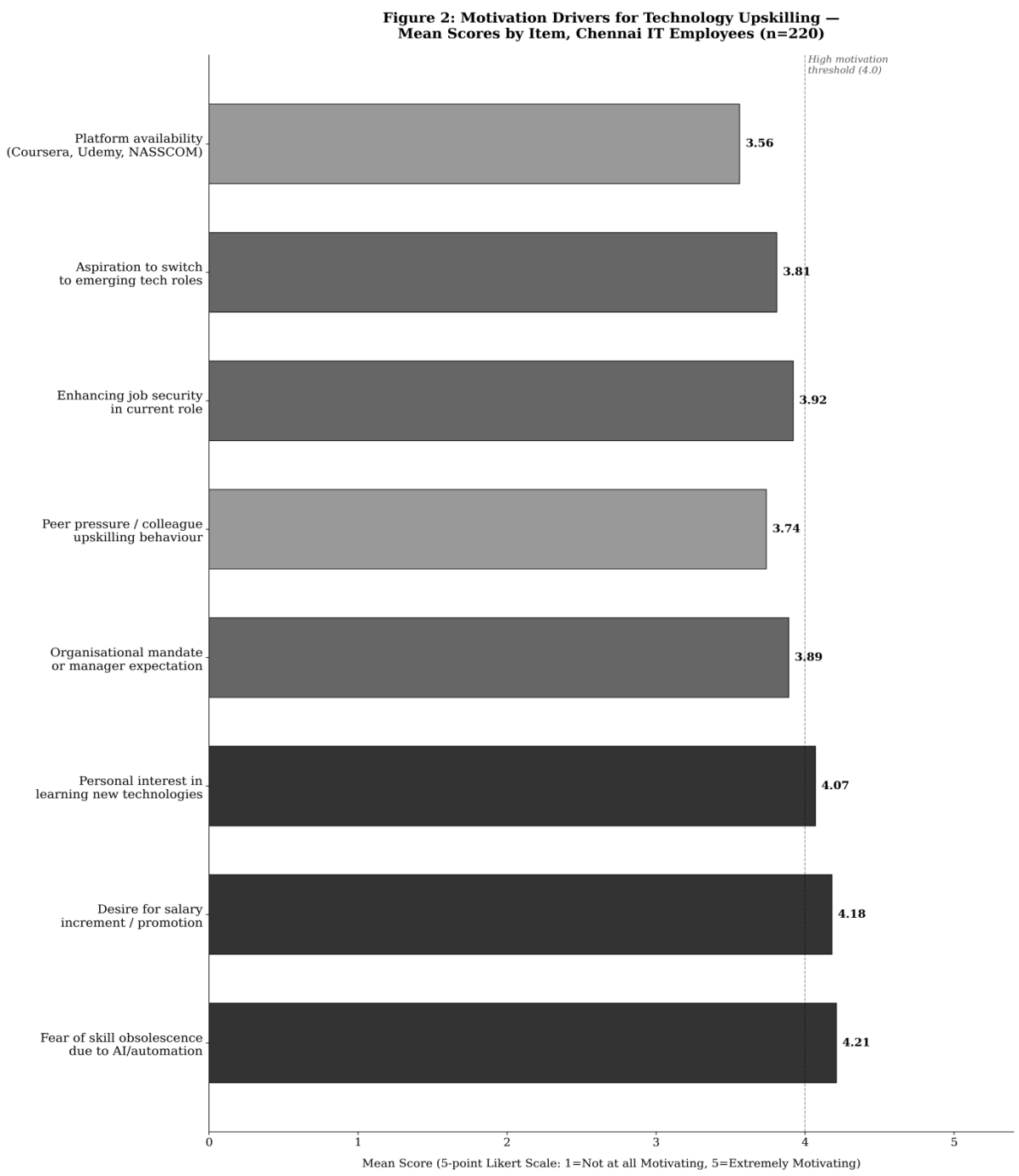
Source: Authors' construct – Li et al. (2024, Information Systems Frontiers, doi:10.1007/s10796-022-10308-y) | Sundaram & Venkatesh (2025, Springer ICONWIL 2024) | Shankar, Yashwanth & Bharathi (2026, Springer)

Figure 1. Conceptual Framework: Motivation, Barriers, and Outcomes of Technology Upskilling Among Chennai IT Employees. Source: Authors' construct based on Deci& Ryan (1985), Maslow (1954), Herzberg (1959), Davis (1989), and Li et al. (2024).

Motivation Drivers for Technology Upskilling

The mean scores of the eight items of motivation on the five-point Likert scale are shown in Figure 2. The highest motivation mean ($M=4.21$, $SD=0.72$) is for fear of skill obsolescence due to AI and automation, indicating a high level of threat perception across Chennai IT workplaces as a growing number of functions are increasingly automated, code generated by AI, and infrastructure managed by AI reduces the commercial value of skills that IT professionals have worked years to build. The second most powerful motivator ($M=4.18$, $SD=0.81$) is desire for salary increment or promotion, which is consistent with Herzberg's prediction that career advancement motivators are the most powerful motivators of discretionary behaviour in the work place. In third place is personal interest in learning new technologies ($M=4.07$, $SD=0.76$), which is the intrinsic motivation component that SDT theory identifies as being the most motivating and engaging of learning.

The existential job security concern that AI adoption is creating throughout the IT workforce is reflected in enhancing job security in the current role, which ranks fourth (M=3.92, SD=0.89). Organisational mandate or manager expectation (M=3.89, SD=0.94) is fifth, suggesting that the motivation of the employer to upskill is still strong despite being less than the intrinsic and career advancement motivators. The other two factors in the upper motivation band are aspiration to switch to emerging technology roles (M=3.81, SD=0.88) and peer pressure from colleagues' upskilling behaviour (M=3.74, SD=0.97). The platform availability through Coursera, Udemy and NASSCOM Future Skills Prime has the lowest motivation mean (M=3.56, SD=1.02) indicating that access to learning platforms is perceived as a hygiene factor (necessary but not a motivating factor) in line with Herzberg's framework. All the eight motivation items have an average score of 3.5 or above (the mid-point of the five-point scale), indicating that the IT workforce in Chennai is generally motivated towards technology upskilling and there is no significant proportion of them who are demotivated by upskilling even if their scores are relatively low for specific motivation items.



Source: Primary survey data, Chennai IT sector, April-June 2025 (n=220). Scale: 1=Not at all Motivating, 5=Extremely Motivating. Darker bars: mean ≥ 4.0 (high motivation category).

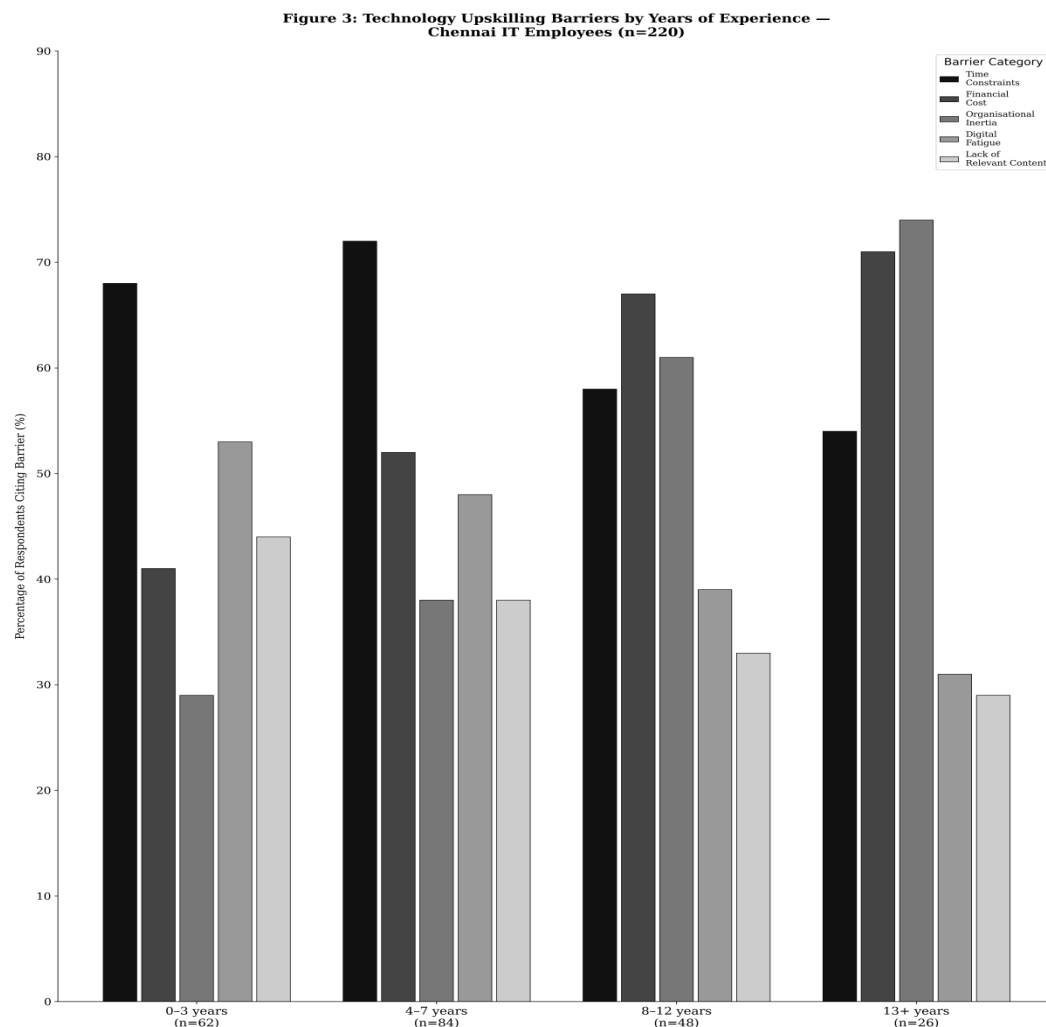
Figure 2. Motivation Drivers for Technology Upskilling — Mean Scores by Item, Chennai IT Employees (n=220, April-June 2025). Scale: 1=Not at all Motivating, 5=Extremely Motivating. Darker bars indicate mean ≥ 4.0 (high motivation threshold). Source: Primary survey data.

Barriers to Technology Upskilling by Experience Group

Figure 3 shows the cross tabulation of the barriers prevalence by four experience groups, indicating that there are significant differences in the barriers profile of technology upskilling across the career trajectory. The major constraint for junior employees (0-3 years, 68% say it is a major constraint) is time, which is important because the work of junior employees is very project-oriented, and they have to spend billable hours, along with learning on the job, to qualify for their next promotion. This is in line with the study by Sundaram and Venkatesh (2025) on finding an effective way of time-work integration, which appears to be the main managerial dilemma in designing upskilling programmes.

Among mid-career (4-7 years) technology professionals, time constraints (72%) are still the most common obstacle, whereas financial cost is a much more prominent issue than for junior (41%) tech professionals, as mid-career tech workers must now take on training programmes to advance their careers that are largely self-funded (AWS Solutions Architect, Google Cloud Professional, Certified Kubernetes Administrator, Databricks Certified Associate). The barrier profile changes significantly for senior employees (8-12 years) where organisation inertia gains more weight (61%) indicating that senior delivery managers in the organisation have less time to invest in learning, are more likely to be under organisational pressure to focus on delivery to clients, and are less likely to be able to take time out for learning. The financial cost barrier is the biggest for the most senior group (13+ years, 71%), both because of the absolute cost of the executive level learning programmes and because of the opportunity cost of billable client advisory time being taken up with formal learning programmes.

Digital fatigue, which was mentioned by 53% of the junior employees (0-3 years) as one of the main barriers to digital learning, is less prominent with experience, indicating that either senior employees have found ways to overcome the digital fatigue barrier or that their higher level of motivation for career development outweighs digital fatigue. The lack of relevant content is mentioned by 44% of junior employees and decreases as experience grows, as there are more advanced level learning content available in emerging technologies compared to the foundational skills that are required for junior employees, and less likely to be found in the commercial upskilling platform libraries. The cross experience barrier findings have implications for the design of L&D programmes: there is no single "one size fits all" upskilling support strategy for an organisation's multi-experience IT workforce.



Source: Primary survey data, Chennai IT sector, April-June 2025 (n=220). Respondents selected their top two barriers; percentages do not sum to 100%. Darker bars represent barriers cited by a higher proportion of respondents.

Figure 3. Technology Upskilling Barriers by Years of Experience, Chennai IT Employees (n=220, April-June 2025). Respondents selected their top two barriers; percentages do not sum to 100%. Source: Primary survey data.

Outcomes of Technology Upskilling

Of the 220 respondents, 183 (83.2%) said they had undergone at least one formal Technology upskilling programme (an online certification course, an employer sponsored training programme or a NASSCOM Future Skills Prime module) in the 18 months before the survey. The frequency distribution of the reported outcomes for these 183 employees who have been upskilled is given below. The most common result is improved job performance and project contribution, which includes faster job completion, better quality of code, better system design decisions, and increased autonomy in technical problem solving (79.1%, n=145). The second most reported outcome is enhanced personal confidence and reduced job insecurity (71.4%, n=131) which reflects the job insecurity threat anxiety reported in the motivation analysis and SDT's competence need satisfaction mechanism, that is, the acquisition of a new skill competency that is demonstrably new, leads to a measurable increase in professional self-efficacy which reduces the threat of obsolescence. Just over half (52.3%, n=96) of upskilled employees report that the salary-increment motivation is realised, with a mean score of 4.18 for this item of motivation, suggesting that there is a motivation-outcome gap, where not all employees who feel motivated to upskill have seen the salary-increment benefit within the organisation's compensation review cycle. Nearly half of the upskilled (48.6%, n=89) mention improved prospects for role transition to emerging technology teams as a career mobility outcome of the aspiration motivation item (M=3.81). Fewer people report formal promotion to a job that reflects upskilling (31.1%, n=57), as is expected given the longer cycle time for formal promotion compared to the 18-month survey time frame.

The outcome findings are consistent with and extend the evidence base of Shankar, Yashwanth and Bharathi (2026) which shows that the incorporation of AI into the modern workplace, which is a must for effective use, significantly increases employee stickiness by increasing competency satisfaction and decreasing replacement anxiety, which requires employee upskilling for effective incorporation. The higher proportion of improved performance and confidence outcomes compared to the lower proportion of formal promotion outcomes implies that the more immediate benefits of upskilling are experiential and psychological (increased capability, confidence and contribution to projects), but the more tangible benefits (career promotion) occur over a longer time horizon than the 18-month time window of the retrospective data allows. Organisations that only highlight salary and promotion opportunities when talking about the upskilling investment in their employee value proposition may thus be under-packaging the short-term psychological and performance benefits that employees realize.

DISCUSSION

The AI Threat as Primary Motivational Driver: Implications

The top-rated motivation item (M=4.21) is fear of skill obsolescence, caused by AI and automation, which has complex implications for upskilling communication and culture in Chennai IT employers. On the other hand, the motivation to avoid the threat of being redundant leads to immediate and strong motivation to access learning platforms, and nothing else, including positive incentives, can achieve the motivational urgency that is created by the fear of being professionally redundant in 3–5 years. However, SDT theory suggests that externally pressured learning engagement, with fear as a motivation, will result in a lower level of intrinsic motivation, knowledge integration, and learning behaviour than will be seen in learning engagement with curiosity as a motivation and autonomy as a support. If an organisation's primary motivation for upskilling is through the threat lens, "upskill or be made redundant", it can create a learning behaviour that is driven by anxiety, rather than a genuine desire to acquire new skills, and result in the completion of certificates rather than the development of competency. In fact, as Li et al. (2024) confirm, organisations that develop a strong learning culture achieve better learning outcomes for upskilling than those where learning is mandated or where there is a threat to the job. This implies that IT employers in Chennai should actively foster the intrinsic motivation elements (personal interest in technology, mastery orientation, curiosity) that ranked third in the motivation analysis (M=4.07), despite the fact that these are less salient in the context of threat.

The Experience-Barrier Interaction: L&D Strategy Implications

The most relevant result of the barrier analysis is the identification of the fact that barrier profiles are not uniform throughout the IT workforce, but vary significantly by career stage. The pattern described in Figure 3 suggests that a universal approach to L&D in a multi-experience IT organisation is not possible because L&D can't solve the diverse barrier landscape of an organisation. Protected learning time should be built into the project allocation – formal learning sprints, billable learning hours and manager approved study days are all examples of learning time that is built into the project allocation and not an after-hour activity. Professional development opportunities are needed for mid-career workers: learning allowances, reimbursement of certification costs, and employer-subsidized participation in higher-level certification programs that do not fit into the budgets of individual professionals. Senior workers require changes to the organisation's culture: manager accountability for team learning outcomes; executive role modelling of upskilling behaviour; and formal career architecture with visible opportunities to move from senior delivery roles to senior technology architecture and AI strategy roles with different skill portfolios. The experience-differentiated barrier analysis in this study operationalises the reskilling and upskilling strategy review by ACR (2025) which suggests that the approach for reskilling and upskilling needs to be operationalized at the organisational level, beyond the individual employee and not just be left to their own devices.

Linking Motivation and Outcomes: The Confidence Bridge

The second most universally reported upskilling outcome is an increase in personal confidence and decrease in job insecurity (71.4%), which is more psychological than material in terms of return on investment of upskilling. Theoretically, this confidence bridge between upskilling engagement and career outcome is based on SDT's competence need satisfaction mechanism: The successful completion of a challenging technology learning programme and the demonstration of new competency in actual project work will lead to a measurable increase in professional self-efficacy, which will offset the obsolescence anxiety that drives motivation. Suresh and Shankar (2019) set the groundwork for emotional intelligence as a close relative of the confidence and stress management aspect of the competence experience, as it is a directly relevant theoretical link between the competence experience's confidence outcome and the performance outcome, the latter of which this study documents as the highest prevalence upskilling return, and which is job stress moderated by emotional intelligence (79.1%).

CONCLUSION, RECOMMENDATIONS, AND FUTURE DIRECTIONS

This study gives systematic descriptive evidence of the motivational landscape, barriers and outcomes of technology upskilling experiences of 220 IT employees in Chennai at four experience levels, which is missing from the current Indian IT upskilling literature. There are three important empirical findings. The motivation landscape of Chennai IT employees is dual-driven, with existential threat (obsolescence due to AI/automation, $M=4.21$) and career advancement aspiration (salary increment and promotion desire, $M=4.18$) as near equally strong primary drivers, with a strong intrinsic motivation (personal learning interest, $M=4.07$) that represents the SDT-aligned motivational base for deep and sustained upskilling engagement. Second, the barrier profile of the Chennai IT employees is experience-stratified, and hence, the responses needed by the organisations are experience-stratified as well – time constraints are dominant for junior employees, financial cost for mid-career employees, and organisational inertia for the senior employees — each needing different L&D support mechanisms. Third, the outcome profile of upskilling engagement is multidimensional and mostly experiential, with better performance (79.1%) and better confidence (71.4%) being the most common outcomes, ahead of the salary increment (52.3%) and formal promotion (31.1%) outcomes that the employee motivation rankings suggest are primary expectations.

The four recommendations that arise for the L&D practitioners and HR managers in the IT sector in Chennai are identified. First, develop upskilling communication strategies that strike the right balance between the threat motivation of obsolescence messaging and intrinsic motivation of mastery orientation; that is, consider upskilling as a way to grow the profession, not a way to save the job, wherever market conditions allow. Second, provide experience differentiated upskilling support mechanisms: Protected learning time for junior employees (Rs. 250,000 minimum certification cost reimbursement for mid-career employees), and minimum 10 percent of monthly work hours as learning time. These include new employee learning and development allowances (50,000 per annum) and senior employee learning culture interventions (manager upskilling KPIs, executive learning sponsorship, and learning culture role modelling by senior staff). Third, make the immediate psychological and performance benefits of upskilling more visible in organisational upskilling value propositions, because the psychological and performance benefits that employees actually experience are more likely to be a motivating factor than the salary and promotion benefits, which take longer to materialise and are not necessarily delivered to everyone. Fourth, collaborate with NASSCOM Future Skills Prime, Coursera for Business, and platform partners like Coursera, Udemy Business and Pluralsight to develop curated learning paths based on specific companies to overcome the content relevance barrier felt by junior employees, and use artificial intelligence-driven learning recommendations to overcome the time constraint barrier by optimising learning.

Longitudinal survey designs should be used in future studies to observe the career paths of upskilled IT workers in Chennai over 3-5 years to get the long-term evidence needed that this study cannot. Formal testing of the mediation pathways proposed by the conceptual framework shown in Figure 1 would be possible with a larger multi-city sample (Chennai, Bengaluru, Hyderabad) using SEM. Future studies should be conducted with a gender-specific analysis of motivation and barrier profiles, which are not fully represented in this descriptive analysis, because there may be significant differences in structural barriers to upskilling between women IT professionals (37.3% of this sample) and male IT professionals that this study's descriptive design does not capture.

REFERENCES

1. ACR Journal. Reskilling and upskilling in Indian organisations: HR strategies for the future of work. *Advances in Consumer Research*. 2025. Available from: <https://acr-journal.com/article/reskilling-and-upskilling-in-indian-organizations-hr-strategies-for-the-future-of-work-1721/>
2. Davis FD. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*. 1989;13(3):319-340. doi:10.2307/249008
3. Deci EL, Ryan RM. *Intrinsic Motivation and Self-Determination in Human Behavior*. Plenum Press; 1985.
4. Herzberg F, Mausner B, Snyderman BB. *The motivation to work*. Wiley; 1959.
5. IJMER. Review of workforce upskilling initiatives for emerging technologies in IT. *International Journal of Management and Entrepreneurship Research*. 2024;6(4). doi:10.51594/ijmer.v6i4.1003

6. Li L, Xu E, Zhou L. Reskilling and upskilling the future-ready workforce for Industry 4.0 and beyond. *Information Systems Frontiers*. 2024;26:1697-1712. doi:10.1007/s10796-022-10308-y
7. Lex Localis Journal. Motivation, upskilling, and work-life balance: Factors influencing IT employee productivity in Chennai. *Lex Localis, the Journal of Local Self-Government*. 2025;23(S4). Available from: <https://lex-localis.org>
8. Maslow AH. *Motivation and Personality*. Harper & Row; 1954.
9. McCrowre R, Adivar B. Exploring underlying factors for variations in digital upskilling. *Human Resource Development Quarterly*. 2024. doi:10.1177/09504222241249078
10. NASSCOM. *Future Skills Prime Annual Report 2024*. National Association of Software and Service Companies (NASSC). 2024. Available from: <https://futureskills.nasscom.in>
11. Raja Priya G. Impact of technology on corporate training and upskilling of employees in Chennai city. *International Journal of Scientific Research and Engineering Development*. 2024;7(6). Available from: <https://ijsred.com/volume7/issue6/IJSRED-V7I6P134.pdf>
12. Santhi V, Shankar R. Collision of Green Employee Engagement and Green Human Resource Management in Employee Productivity. *HuSS: International Journal of Research in Humanities and Social Sciences*. 2021;8(1):27-32.
13. Shankar R, Yashwanth R, Bharathi R. Integrating AI and sustainability to improve employee stickiness in modern workplaces. In Abuzuaiter B editor. *Sustainable Business Systems: Strategic Insights and Emerging Trends*. Springer; 2026. doi:10.1007/978-3-031-99470-8_2
14. Sundaram G, Venkatesh B. Quantitative analysis of work-integrated upskilling: Employee perspectives, organisational approaches, and career outcomes. Bindumadhavan K, Lacey N, editors. *Work Integrated Learning-Directions for the Future, ICONWIL 2024*. Springer; 2025. doi:10.1007/978-981-96-0201-8_26
15. Suresh P, Shankar R. Emotional intelligence and job stress — A performance analysis in engineering companies. *International Journal of Advanced Science and Technology*. 2019;28(19):668-672.
16. World Economic Forum. *Future of Jobs Report 2023*. WEF; 2023. Available from: <https://www.weforum.org/publications/the-future-of-jobs-report-2023/>
17. WJARR. Understanding employee experiences with technology integration in the Indian industry. *World Journal of Advanced Research and Reviews*. 2024;22(1):729-736. doi:10.30574/wjarr.2024.22.1
- 18.