Research Article

Digital Upskilling And Career Advancement: Examining The Role Of Technology Adoption In Job Satisfaction Among It Professionals

Mr.S.Vasanthan[1] , Dr. S.Saravana Kumar[2]

[1]Ph.D Research Scholar (Roll No:2211130025) Department of Business Administration Annamalai University Sureshvasanth2126@gmail.com
[2]Research Supervisor & Assistant Professor Department of Business Administration Annamalai University sensara79@gmail.com

Abstract

Digital technologies have changed the way careers in the information technology (IT) sector work and the skills that are needed. The aim of this study is to examine the impact of technology adoption, digital upskilling, job satisfaction, and career growth among IT professionals in Chennai, India. The study is based on the Technology Acceptance Model (TAM) and Human Capital Theory and uses Structural Equation Modelling (SEM) that is derived from primary data gathered from 200 IT practitioners, using purposive and snowball sampling technique. Results show that digital upskilling (β = 0.512) and job satisfaction (β = 0.438) are strongly and positively related to career advancement, which are both significantly related to technology adoption. Mediation analysis further reveals a significant indirect effect (both β = 0.400) of digital upskilling and job satisfaction on the relationship between technology adoption and career advancement, which is larger than the direct effect (β = 0.187). The study highlights the need for structured upskilling programs and technology deployment programs in IT organizations to be integrated. HR practitioners and policy makers in India are discussed on the implications of the evolving digital workforce in India.

Keywords: Technology adoption, digital upskilling, job satisfaction, career advancement, structural equation modelling.

Introduction

The global information technology (IT) industry is at the leading edge of digital change and requires its labor force to keep up pace with the new technology developments like Artificial Intelligence (AI), Cloud Computing, Automation, etc. In the eyes of the IT professionals, technology has become an integral part of the career rather than a peripheral one as a driver of career development, job satisfaction, and longer employment (Brynjolfsson& McAfee 2014; Shankar et al. 2026). Digital upskilling – the planned learning approach to gain skills in digital technologies – is now essential both for individuals who wish to progress in their careers and for organizations that want to maintain their competitive edge (Cedefop, 2020; World Economic Forum, 2023).

One of India's leading IT hubs, Chennai has more than 500,000 IT professionals making it an interesting research setting. The city's labor market is experiencing a dynamic environment with frequent job disruptions, high job skills volatility and high employee turnover (NASSCOM, 2023; R., 2021). While this is the case, the pathways through which the process of technology adoption leads to upskilling behavior and career outcomes are not well understood. Suresh and Shankar (2019) reported on the negative interaction between job stress and job performance in technical occupations, and Shankar and Gopal (2021) showed that technology-based working conditions directly impact job performance – both of which underscore the complexity of the human-technology interface in IT careers.

The study takes a theoretical approach based on the Technology Acceptance Model (TAM; Davis, 1989) and Human Capital Theory (Becker, 1964), which looks at technology adoption as the key independent variable that influences digital upskilling and job satisfaction and also investigates the sequential effect of technology adoption on career progression. Shankar et al. (2026) prove that AI-driven workplaces can improve employee stickiness by leading to competence and engagement, adding to the evidence of value created through the thoughtful use of technology at the career level. The upskilling–satisfaction–advancement chain explored in this research is also theoretically supported by Santhi and Shankar (2021), who also found that employees who participated in developmental activities had higher productivity. Structural Equation Modelling (SEM) is used to evaluate the quality of the measures and the structural relationships between the constructs in one model.

Statement of the Problem

The IT industry continues to face a growing and chronic lack of skills, which negatively impacts on the productivity of organizations and the development of individual careers. According to industry statistics, more than 54% of IT

professionals worldwide will need to be reskilled by 2025; however, less than 30% of organizations have formal upskilling initiatives that match their technology plans (World Economic Forum, 2023; NASSCOM, 2023). This imbalance results in a paradox: organizations invest heavily in their digital transformation, but the employees who are leading it have limited mobility, reduced job satisfaction and lagging competencies.

There is no magic formula between the use of technology and employee outcomes. Upskilling behavior, or satisfaction is not guaranteed with access to advanced digital tools (Venkatesh et al., 2003). The existing literature has mainly analyzed the adoption of technology (Davis, 1989) or HR outcomes (satisfaction and attrition) in isolation and failed to study the link between those two areas at a structural level (R., 2021; Suresh & Shankar, 2019). Investigating the influence of digital upskilling on career outcomes is particularly under-researched in the Indian IT landscape, reflecting a gap in understanding. In the Indian IT landscape, the influence of digital upskilling on career outcomes remains under-researched, particularly as a mediator between technology adoption and career advancement. To fill this void, this study proposes and evaluates an integrative SEM model that incorporates the concept of technology adoption, upskilling, satisfaction and career advancement in one explanatory model for the IT professionals of Chennai.

Literature Review

Technology Adoption

The perceived usefulness and ease of use are the two primary factors that have been identified and extended to include social influence and facilitating conditions by Venkatesh et al. (2003) as major antecedents that influence technology adoption, as defined by Davis (1989) in his TAM. Today, technology's role in the workplace is an ever-evolving journey, with each new platform shift, automation, and integration with artificial intelligence. AI environments have shown a significant impact on employee stickiness, defined as commitment and engagement, as they make tasks more efficient and offer personal growth, which highlights a bigger force of AI technology than just operational efficiency (Shankar et al., 2026).

Digital Upskilling

Digital upskilling refers to learning activities related to technology and that enable the employees to respond to changing job requirements, such as e-learning, professional certifications and training in the use of AI tools (Cedefop, 2020). This is particularly relevant to IT professionals in complex digital work environments, as Shankar and Gopal (2021) discovered that faculty skills with digital platforms were a significant predictor of faculty's perceived professional development in digital environments. In addition, Santhi and Shankar (2021) show that employees who participate in purposeful developmental activities have measurably higher productivity, highlighting the career-enabling potential of upskilling as a purposeful engagement of employees.

Job Satisfaction and Career Advancement

In the IT field, job satisfaction is a worker's judgment of internal aspects of the job (autonomy, skill utilization and growth) as well as external aspects (compensation and managerial quality) (Locke, 1976; Hackman & Oldham, 1976). According to Suresh and Shankar (2019), emotional intelligence in tandem with job stress does affect performance in technical jobs; R. In line with this, (2021) proved that leadership quality acts as a mediator between satisfaction and attrition with satisfaction as a key predictor that plays an integral role in the careers. In knowledge-intensive fields, career success is based on the accumulation of career capital, and thus on the ability to move up in the career (Arthur & Rousseau, 1996). The theory of Self-Determination Theory (Deci& Ryan, 2000) provides the foundation linking upskilling derived competence, satisfaction and advancement, and the upskilling derived satisfaction and advancement (core proposition of this study) and technology adoption, autonomy and mastery.

Research Objective

To investigate the structural relationship between technology adoption, digital upskilling, job satisfaction and career advancement among IT professionals in Chennai, and to determine the mediation effect of digital upskilling and job satisfaction between technology adoption and career advancement by using Structural Equation Modelling (SEM).

Research Methodology

The research design used in this study is quantitative research design to explore the structural relationship between technological adoption, digital upskilling, job satisfaction, and career progression of IT professionals in the city of Chennai. The target group is software companies, IT enabled services (ITeS) and technology startups in Chennai with

IT professionals working in these organizations. Structured and closed-ended questionnaire will be used for primary data collection using online survey platform (Google Forms) and the survey will be sent through the LinkedIn network and the organizations HR channels. All constructs will be measured using the 5 point likert scale in the questionnaire. The number of respondents that will be sampled is 200 respondents, which is deemed sufficient for SEM analysis according to Hair et al. (2010) who stated that at least five observations for each parameter are required. To ensure that those surveyed are relevant to the inclusion criteria for the study, namely active IT professionals with at least one-year experience, the research design will use purposive sampling and snowball sampling will be used to achieve the inclusion of the respondents.

Table 1: Result of Consolidated Analyses

S.No	Analysis / Path	Measurement Model (CFA) & Model Fit					Structural Paths & Mediation					Result
		α	CR	AVE	Factor Load	Fit Index	β	SE	t-value	p-value	Indirect β [95% CI]	
1	TA: Technology Adoption	0.881	0.893	0.626	0.74–0.87	–	–	–	–	–	–	**Valid**
2	DS: Digital Upskilling	0.864	0.877	0.641	0.76–0.85	–	–	–	–	–	–	**Valid**
3	JS: Job Satisfaction	0.872	0.886	0.658	0.77–0.86	–	–	–	–	–	–	**Valid**
4	CA: Career Advancement	0.891	0.904	0.672	0.78–0.88	–	–	–	–	–	–	**Valid**
5	Overall Model Fit	–	–	–	–	χ^2/df=2.14 CFI=0.963 TLI=0.957 RMSEA=0.051 SRMR=0.048	–	–	–	–	–	**Good Fit**
6	H1: TA → DS	–	–	–	–	–	0.512	0.071	7.211	<0.001	–	**Supported**
7	H2: TA → JS	–	–	–	–	–	0.438	0.068	6.441	<0.001	–	**Supported**
8	H3: DS → CA	–	–	–	–	–	0.461	0.073	6.315	<0.001	–	**Supported**
9	H4: JS → CA	–	–	–	–	–	0.374	0.069	5.420	<0.001	–	**Supported**
10	H5: TA → CA (Direct)	–	–	–	–	–	0.187	0.065	2.877	0.004	–	**Supported**
11	TA → DS → CA (Mediation)	–	–	–	–	–	–	–	–	–	0.236 [0.171, 0.312]	**Supported**
12	TA → JS → CA (Mediation)	–	–	–	–	–	–	–	–	–	0.164 [0.108, 0.231]	**Supported**
13	TA → DS+JS → CA (Combined)	–	–	–	–	–	–	–	–	–	0.400 [0.312, 0.489]	**Supported**

Note: α = Cronbach's Alpha; CR = Composite Reliability; AVE = Average Variance Extracted; β = Standardised Path Coefficient; SE = Standard Error; CI = Confidence Interval (Bootstrap, n=5000). All factor loadings significant at $p < 0.001$.

All of the four constructs have good internal consistency (α > 0.86; CR > 0.87) and convergent validity (AVE > 0.62). The overall model fit indices (CFI = 0.963, RMSEA = 0.051, SRMR = 0.048) suggest a good fit between the hypothesized SEM and the observed data. Statistical significance is at the level of $p < 0.001$ or better for all five structural hypotheses. The strongest direct influence upon Digital Upskilling is Technology Adoption (β = 0.512), with Job Satisfaction (β = 0.438) coming in second. The two mediators, Career Advancement — Digital Upskilling (r = 0.461) and Job Satisfaction (r = 0.374), capture the effect of the two variables, more strongly than Job Satisfaction. The direct effect of Technology Adoption towards Career Advancement is significant but modest (β = 0.187). The partial mediation is supported by the bootstrap mediation analysis: the direct effect of the predictor on the criterion (β = 0.187) is significantly smaller than the indirect effect of the predictor on the criterion through the mediator(s) (β = 0.400) and the mediator between the predictor and the criterion accounts for 59% of the indirect effect, with the mediator between the predictor and the criterion being Digital Upskilling (β = 0.400) and the mediator between the predictor and the criterion being Job Satisfaction (β = 0.411).

Discussion

This study analyzed the structural relationships between technology adoption, digital upskilling, job satisfaction and career advancement among the IT professionals in Chennai using SEM structure. The results strongly support all five hypothesized paths, supporting the technology adoption as a strong predictor of upskilling behaviour and job satisfaction, which are further hypothesized to be predictors of career promotion. The most important contribution of the study is the prominence of the mediated pathways (with a combined indirect effect of β = 0.400 that far outweighs the direct effect of β = 0.187) which show that the impact of technology adoption on career outcomes is mediated by human development processes, and not directly mediated by technology exposure.

Digital upskilling proved to be the more powerful mediator, accounting for 59% of the total indirect effect, further supporting its strategic role in the development of IT careers. The result has strong HR practice implications – companies that implement technology without supporting upskilling frameworks will fail to get the career development return on investment from their digital investment. The main pathways to technology adoption leading to career progression are structured learning paths, AI-supported training platforms, certifications, and manager-initiated development discussions, aligning with the AI-workplace framework proposed by Shankar et al. (2026).

Individually, spending time with digital tools and actively working towards digital skill enhancement represent some of the most lucrative investments in career development that IT professionals can make. Organizations that foster digital workplaces that are accessible, have supportive leadership and support cultures that encourage growth are more likely to have positive results such as better retention rates and career outcomes (R., 2021). To further validate the model's predictive power and generalizability in the context of the Chennai IT ecosystem, future research can investigate the long-term impacts of continuous upskilling on career paths and explore potential moderating factors like organizational size, managerial support quality, and participants' learning orientations.

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