Mapping Research on Ageism, Personal and Social Well-Being in IT Professionals: A Literature Review and Bibliometric Analysis

Rinku Mahindru, Hersheen Kaur, Renu Gupta

Abstract

The purpose of the current study is to identify key contributors, recent dynamics, domains, and advocates for future study directions in the field of Information Technology professionals in the context of ageism, personal and social well-being. In the study, a bibliometric technique is employed to assess the global scientific output of research on IT professionals and to investigate the status and developments in this sector from 1998 to mid-2022. For quantitative and qualitative assessments of publication outputs and author contributions, the VOSviewer programme was utilised. To find existing research on this topic, the publication utilised bibliometric analysis on a sample of 294 papers collected from the Scopus database. It was discovered that the primary focus of critical study in this field is on job satisfaction, employee engagement, health issues, software development, and retention. There are implications for research and IT management. Thus, there is a need for future research on the role of the specific characteristics of embeddedness, such as diversity, ageism, mixed job demands, turnover, and turnaway, among IT Professionals.

Keywords: Information Technology, Professionals, Employees, Bibliometric Analysis.

Paper Type: Research Paper

JEL Classification:C15, P16, R23, O3

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Introduction

Information Technology (IT) is among the most rapidly expanding sectors (Chakrabarti & Guha, 2016; Karpefors & van Riemsdijk, 2020; Sharma & Aparicio, 2022; Van Heerden et al., 2022). In this digital era information technology professionals play a quintessential role (Fortuna & Gorbaniuk, 2022; Sasaki et al., 2019; Stray et al., 2022). On the one hand, IT companies gain advantages from their bright and competent staff members to boost their yearly growth and production (Khatri et al., 2022). On the other hand, IT and software companies face several obstacles because to high staff turnover intent(Agarwal & Ferratt, 2000; Alamelu et al., 2017; Al-Shammari, 2021). Lack of management support, low level pay plans, bad relationships with supervisors, constrained development and training programmes, and work - related stress are the primary drivers of high employee turnover intention (Adam et al., 2015; Agarwal & Ferratt, 2000; Sharma & Aparicio, 2022). This further demonstrates the importance of study on this in-demand job profile to the expansion of the Information Technology (IT) sector.

The IT industry is a high-pressure atmosphere in which it is difficult to maintain specialised technical prowess over time (Coombs, 2009; Mergel et al., 2021; Naqvi & Bashir, 2015). This dedication undermines the work-life balance of aging professionals who desire to spend more time with their family (Davis et al., 2006; Jnaneswar, 2016; Kannika & Chockalingam, 2019; Lundberg et al., 2021). The desire for a greater work-life balance may explain why some professionals later in their careers migrate from a specialised field to more generic managerial jobs(Ayedee et al., 2021). Eventually, the IT industry is dominated by an age bias in the workforce that interacts with new technologies and innovative companies (Porto Bellini et al., 2019; Zhang et al., 2012). To sustain a progressively ageing workforce that contributes to its variety, businesses must therefore pay attention to changes that may occur in employees' fundamental motivations(Kumar, 2019). Note that researchers from all over the world have examined the various facets of IT workers and published numerous papers on the subject. However, a comprehensive statistical review of the research conducted by IT professionals has never been conducted.

Bibliometrics, which was pioneered by Pritchard, is the quantitative and qualitative examination of published academic literature for tracing the evolution of a particular research topic over an extended time span (Pritchard, 1969). By examining publishing features such as authorship, sources, institution, journals, citations, corresponding author's country, and co-citation Networks, bibliometrics can provide researchers considerable information about a certain topic (Mahindru et al., 2023; Small, 2003).

Therefore, the purpose of this article is to conduct a literature review and bibliometric analysis of previous work done on IT professionals and to offer suggestions for how human resource management procedures may change to accommodate the misalignment of IT personnel. This paper will follow the format described below. The literature review is presented in Section 2, followed by a description of the research methodology in Section 3, the primary analysis and findings in Section 4, and finally some discussions in Section 5. Section 6 concludes with a brief summary of the findings, potential avenues for further study, and any relevant caveats.

Review of Literature

Authors have taken into account a wide range of factors while conducting studies on IT workers, according to a literature analysis. Increased web usage, expensive internet expenses, ethical considerations, and judgments about web access restrictions were all addressed in several research (Al-Shaikh et al., 2018; Davison et al., 2009; Dick, 1994; Jones, 2016; Khalil & Seleim, 2012; Seymour & Nadasen, 2007). A discussion of software piracy from a worldwide viewpoint was presented by Mishra A. et al (2006).From government and commercial sector

enterprises, they conducted a poll of IT professionals. According to the results of this poll, gender, age, and experience all have a role in software piracy.IT experts have highlighted employee engagement as a crucial component in productivity and success.

Using IT as a case study, Kamalanabhan et al. (2009)investigated the relationship between employee engagement and work satisfaction in the context of the IT industry. Employee involvement was found to have a strong and positive link with work satisfaction, even after adjusting for age, gender, employment tenure, and marital status. Further, There are generational inequalities in the job commitments of Baby Boomer (born 1946 to 1962) and Gen-X (born 1963 to 1981) IT workers, as Davis et al. (2006)discovered. Work engagement, job involvement, workgroup attachment, organisational commitment, and professional commitment are all included in the research on workplace commitments. These two generations of IT workers, contrary to business press stereotypes, appear to have more in common than they have differing job responsibilities. Researchers in the IT sector have also focused on the health concerns experienced by IT employees as a consequence of the sedentary lifestyle associated with the job, in addition to the work commitment issues.

Neck and back pain, dry eyes, eye strain, vitamin deficiencies, fatigue, stress, and depression were among the many health issues highlighted by the researchers (Brindha et al., 2015; Gayathri et al., 2018; Ingole et al., 2015; Joseph et al., 2018; Mathivadani et al., 2018; Mohandoss et al., 2014; Padmaja et al., 2018; Santhosh Krishna et al., 2021; Smitha et al., 2019). Digital Eye Strain (DES) is a common problem among IT workers, and Zayed H.A.M. (2021) has researched its incidence and related personal, ergonomic, and environmental aspects among IT workers at Tanta University in Egypt. The prevalence of DES was found to be remarkably high among those working in the IT sector. Predictive factors for DES included female gender, older age, wearing eyeglasses, long duration of computer use, an uncorrected ergonomic workstation, and a dry environment. In addition, Vimala and Madhavi (2009)investigated the connection between stress and depression among women working in IT, as well as the impact of age and experience. It is also clear from this survey that majority of respondents are depressed to some degree, and that both age and experience have a substantial impact on the levels of stress and depression experienced by workers. The findings suggest a possible causal link between chronic stress and clinical depression. Researchers Umakanthet al. (2020)showed that female IT professionals had a higher disease awareness than the general population when it comes to Carpal Tunnel Syndrome (CTS). The general public appears to be adequately informed on CTS. Since this is such a widespread issue affecting millions of individuals worldwide, and since many people may be unaware of the problem even existing, they recommended that study and studies be continued.

The purpose of the research conducted by Bansal and Pathak (2020)is to bring attention to the role that one's personality plays in determining how much time they spend at work, how healthy they are overall, and how satisfied they are with their jobs (government and private). The findings showed that job satisfaction and health were equally high for both men and women. Finally, the levels of job satisfaction and stress experienced by IT professionals in the private sector were not the same as those in the public sector. Statistical analysis revealed a favourable and statistically significant relationship between work stress and individual traits. Analysis using a regression model showed that negative affectivity is a significant predictor of job satisfaction. These results suggested that negative affectivity had emerged as a significant component in the well-being and job satisfaction of IT professionals. As the COVID-19 pandemic progressed, certain research examined the effects the virus had on the difficulties encountered by IT specialists (Cruz & Luna, 2022; Papagiannidis et al., 2020). In light of the COVID-19 pandemic, Kumaresan A et al.(2022)investigated the incidence of burnout syndrome among telecommuting information technology (IT) professionals and the effects of

burnout across demographics. Researchers found that 95% of IT workers are experiencing burnout, with women being more susceptible than men. Maintaining one's mental health may also need early, routine, and frequent evaluations of one's physical health, mental health, and burnout syndrome.

A diverse workforce is beneficial in the information technology industry (Kumar et al., 2021). Women in IT have been the focus of some studies. Bury (2010)analysed the challenges and rewards for women in "hybrid" or "mixed skill" IT roles in the Web 2.0 era. In their research, Valk and Srinivasan(2011)try to decipher what factors, both professional and personal, affect the work-family balance of Indian women in the IT industry. Exploratory qualitative research was conducted with working women in the software industry in Bangalore, India. There are six overarching themes that emerge from the accounts: the influence of family on decision-making; the challenges of juggling multiple roles; the importance of self and professional identity; the difficulties of finding a balance between work and personal life; the role of organisational policies and practises; and the importance of social support.

Researchers also explored the reasons why students chose IT as a career (Akbulut & Looney, 2007; Comber et al., 2021; Crichigno et al., 2020; Leigh et al., 2009; Stahl & Wood, 2006). here have also been research papers about whether or not IT professionals intend to remain with their current employers (Cotton and Adya 2018). Employees' motivations for staying or leaving a company can be better understood according to the research presented by Zhang et al. (2012). The researchers discovered that the connection between skill obsolescence perception and turnover intent is somewhat mediated by the fit dimension of embeddedness and fully mediated by the sacrifice dimension. They imply that there are other factors at play when determining an individual's intention to leave a job, and that future studies of IT employee turnover should account for factors like age and the perception of job security. Additionally, Porto Bellini et al., (2019)identified two significant actions associated with employment mobility in the IT industry: switching to a new firm (turnover) and leaving the industry altogether (turnaway) in the midst of a national crisis. The findings indicate that Professional Self-Efficacy (PSE) is inversely related to Job insecurity (JI) and positively related to Job Satisfaction (JS), that JI is related to TI in a positive way, that JS is inversely related to TI and TI, and that JS is related to TI in a negative way. The national crisis seems to accentuate the desire of many IT workers to leave their jobs. Age also had an impact, with older professionals being less likely to leave their positions and more likely to be turned away.

Additionally, some articles investigate the methods employed by IT experts to manage their careers. Information technology (IT) professionals utilise a variety of career management methods, and these studies provide light on the characteristics that predict the usage of these strategies, as well as the tactics themselves, to help practitioners and academics better understand these issues (Wickramasinghe & Jayaweera, 2011). In this era of rapid change and technological growth, researchers also believe that municipal governments can and should become an employer of choice for technical workers despite public-sector limits (Lan et al., 2005; Rodino-Colocino, 2012).

Following the available literature on the subject, the current study addresses the following research questions (RQs):

RQ 1 Which authors, articles, journals, institutions and countries are the most dominant in research relating to information technology professionals or IT professionals?

RQ2 What are the most frequent used keywords relating to information technology professionals or IT professionals?

RQ3 Which areas involving information technology professionals or IT professionals need additional study?

Research Methodology

The intend of this paper is to provide bibliometric analysis of the academic research on information technology professionals with the focus on identifying main trends with respect to ageism and effect on personal and societal well-being. Journals, authors, institutions, and even countries can all be assessed by using bibliometric analysis, a quantitative and qualitative method (Hirsch, 2005).The design of study comprised of four-stage research procedure presented in Figure 1. The first level of process was based on identification of keywords relevant to the research objectives. This was performed by using keywords such "information technology professionals" or "IT professionals". At the second level,multiple test searches of several phrases were conducted in the Scopus and WOS database in order to identify the most suitable keywords for the final search. The resultant keywords chosen were: "Information Technology Professionals" or "IT Professionals" or "Information Technology Employees" or "IT Employees" in the fields of "Article title, Abstract, Keywords". At the third level, it was found that the former database indexes a greater number of articles and hence Scopus was finally chosen to be the main source for using bibliometric records for this study. The final step of the study involved cleaning of the dataset with respect to the following criteria: language, source type, publication stage, document type and subject area. After screening the English language based published articles which are found in open access journals, only 369 records were returned. Accordingly, subject area filters were placed in order to scrutinise those articles which were connected to the subject of the study (Computer science, Business, Accounting and Management, Decision Making, Psychology, Economics and Arts). The final dataset consisted of 294 articles relevant for the study which were published during the years 1998-2022.
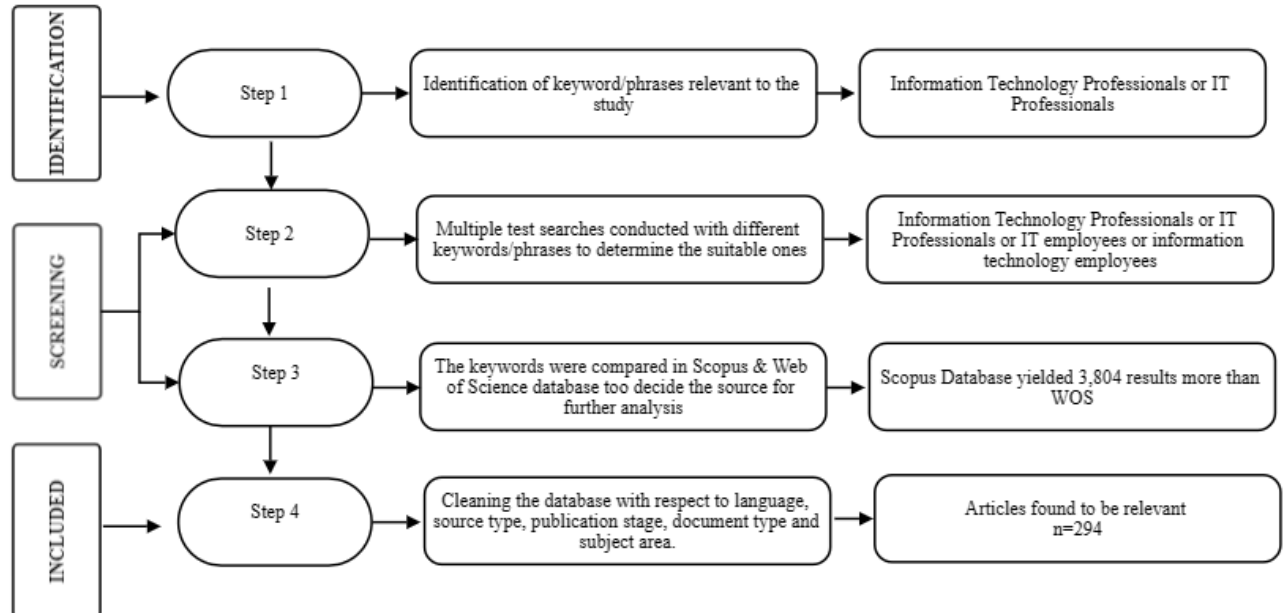

Fig. 1: Identification of studies via databases using PRISMA protocol

Source: own explanation

Results

Analysis & Findings

To address research questions of the study, a quantitative analysis of the published papers was conducted. Furthermore, the study analysed the trend of publications over a period of time, as well as authorship and citation patterns. In addition, we identified prolific authors, influential keywords, countries and prominent publications for identifying rising themes and potential future directions. Following are the sections detailing the findings of a bibliographic analysis of 294 articles.

Year of Publications - Evolution of Published Studies

The sample for the study includes all the published studies during the years 1998 and 2022 is presented in Figure 2. The figure indicates that academic research relating information technology professionals or employees has been showing an upward trend. The most prolific year are 2020 (43 articles), 2021 (39 articles), 2019 (34 articles), and 2018 (30 articles).This rising trend is expected to continue past 2022, with 26 articles (already published by the end of the first half year of 2022).
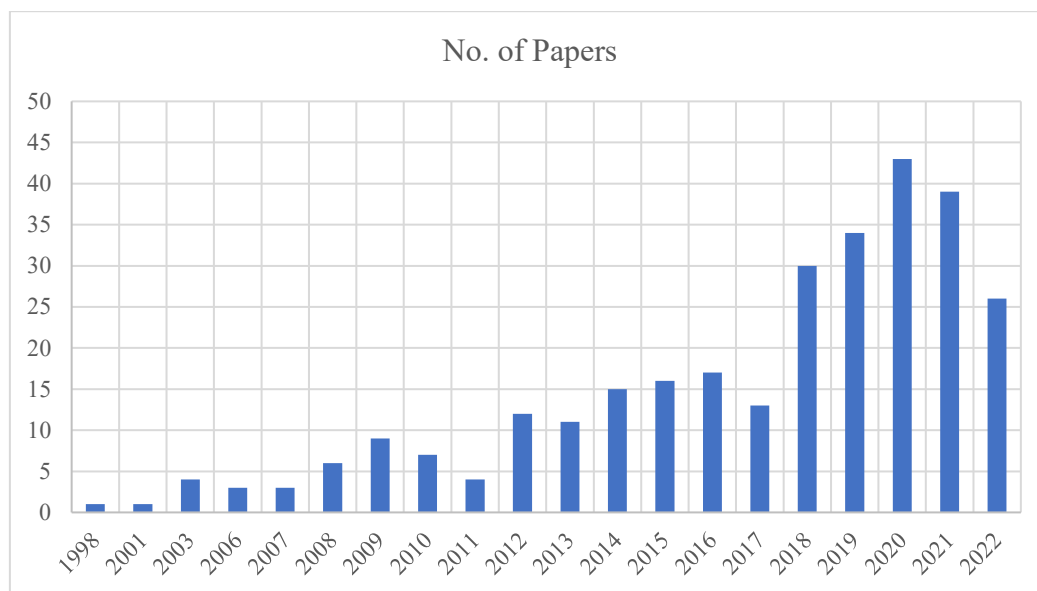

Fig. 2: Evolution of publications on IT Professionals, 1998-2022 (n = 294).

Source: own elaboration based on Scopus database.

Co- Occurrences Analysis of Keywords

The most popular themes in the field are determined by a co-occurrence analysis of 113 terms that were compiled using the criteria of a minimum of three occurrences of each keyword. Terms "IT professionals" and "IT professional" are the most popular in the stream and cumulatively occurred 68 times. Among the top five popular keywords job satisfaction stands at the fourth position with occurrences of 22 times and total link strength of 55. The Figure 3 created using VOS Viewer highlights 10 clusters. The keywords distribution according to different clusters is shown in Table 1. A detailed keywords cluster analysis helps in understanding the multiple strongly inter linked keywords or publication themes.
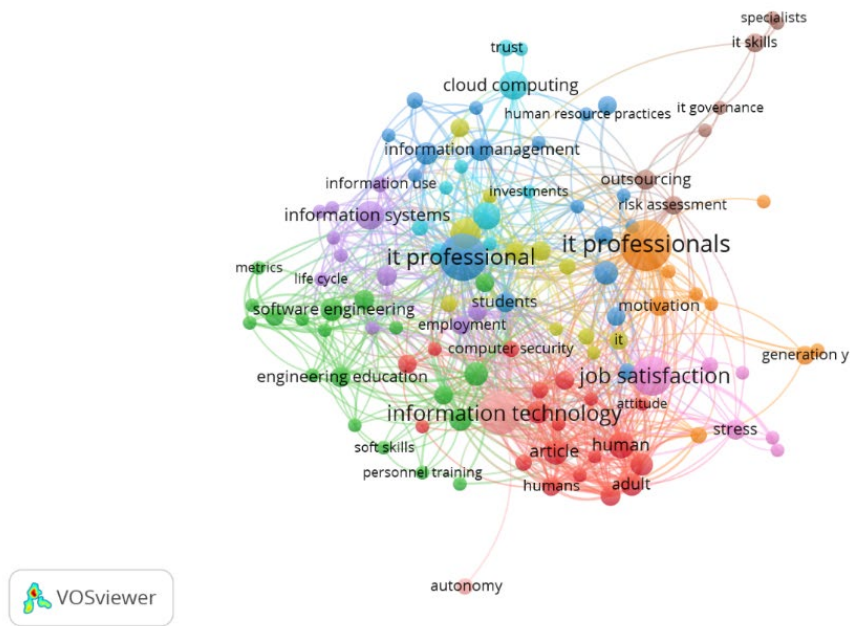
Fig. 3: Keywords clustering IT Professionals research.
Source: own elaboration based on the VOSviewer software.

Table 1: Clusters of Keywords.

Clusters	Keywords
Red (1)	adult, article, artificial intelligence, attitude, computer security, empirical studies, female, gender differences, human, human experiment, humans, internet learning, learning systems, machine learning, male, perception, software, task performance.
Green (2)	curricula, cyber security, cybersecurity. developing countries education, engineering education, human resource management, ICT for development, metrics, network security, organizational change, personnel training, philosophical aspects, security, software engineering, software design, software testing, soft skills teaching.
Blue (3)	age, cloud-based, computer networks, digital transformation, gender, human resource practices, India, information management, innovation, IT employees, IT professional, knowledge-based systems, knowledge management, knowledge sharing, organizational culture, retention, security of data, students.
Yellow (4)	adoption, information technology professionals, IT, knowledge acquisition, managers, professional aspects, project management, project managers, south africa, turnover intention, work engagement.
Purple (5)	career anchors, decision making, employment, information system, information use, information systems, information technology (IT), knowledge, life cycle, sustainability, sustainable development.

Turquoise (6)	big data, blockchain, cloud computing, data analytics, e-government, internet of things, investments, metadata, surveys, trust.
Orange (7)	generation Y,IT professionals, IT workers, motivation, performance, turnover, work, work life balance, work-life balance.
Brown (8)	IT governance, IT skills, outsourcing, risk assessment, specialists, uncertainty, versatilists.
Pink (9)	employee engagement, job satisfaction, personnel, quality of work life, social media, stress.
Peach (10)	autonomy, information technology.

Source: own elaboration based on the VOSviewer software.

A significant finding from the above map and table is that IT professionals or IT professional are widely connected with terms like artificial intelligence, information management, engineering education and machine learning. Increasingly, the words are also linked with human resource management and personal well-being concepts such as gender differences, organizational culture, employee engagement, job satisfaction, personnel, quality of work life etc(Abey & Velmurugan, 2022; Adya, 2019; Kumaresan et al., 2022; Porto Bellini et al., 2019; Valk & Srinivasan, 2011). However, amongst these emerging themes there is a lack of ageism being studied by scholars.

Co-Citation Analysis-Cited Authors
The network of the main authors who studied this theme was analysed in this section. The section is also highlighting the researchers who proved to be more thoughtful by the topic. A co-citation link is a link between two items that are both cited by the same document. Although the study analysed an evolving topic, the threshold of the minimum number of citations of an author was set on 10 and out of 21,365 authors, 173 met this threshold. Thus, Figure 4. (Processed using VOSviewer) highlights the 7 resulting clusters. The first cluster, denoted by the red colour, comprises of 35 items, Klein,G. being the most cited author, with 33 citations and 1003 total link strength, followed by Jiang, J.J., with 32 citations and Igbaria, M (27 citations). The second cluster, represented by the green colour, includes 34 authors and is led by Mithas,S.with 32 citations and total link strength of 758, followed by Agarwal,R. with 28 citations and Ang,S. with 26 citations.

Further, the third cluster (blue colour) contains 28 items and is represented by Venkatesh, V. with 35 citations and total link strength of 943, followed by Hair, J.F. with 33 citations and Davis, F.D. with 29 citations. The fourth cluster (yellow) includes 27 authors and is led by Bakker,A.B. with 81 citations, followed by Schaufeli, W.B.(56 citations). The fifth cluster denoted by purple colour consists of 26 items is led by Zhang,Y. with 21 citations and total link strength of 210. The second last cluster denoted by light blue colour comprises of 16 items. Benbasat,I. leads the cluster with 33 citations and total link strength of 614.The last cluster represented by orange colour consists of 6 items only with Kelly, E.L.leading with 14 citations. Regarding the citation perspective, the yellow cluster (fourth cluster) can be considered the main cluster for this research part. Bakker,A.B. with 81 citations has the highest number of citations and total link strength of 2516 . Finally, it can be concluded that there are many authors who are working on the issues related toIT professionals.
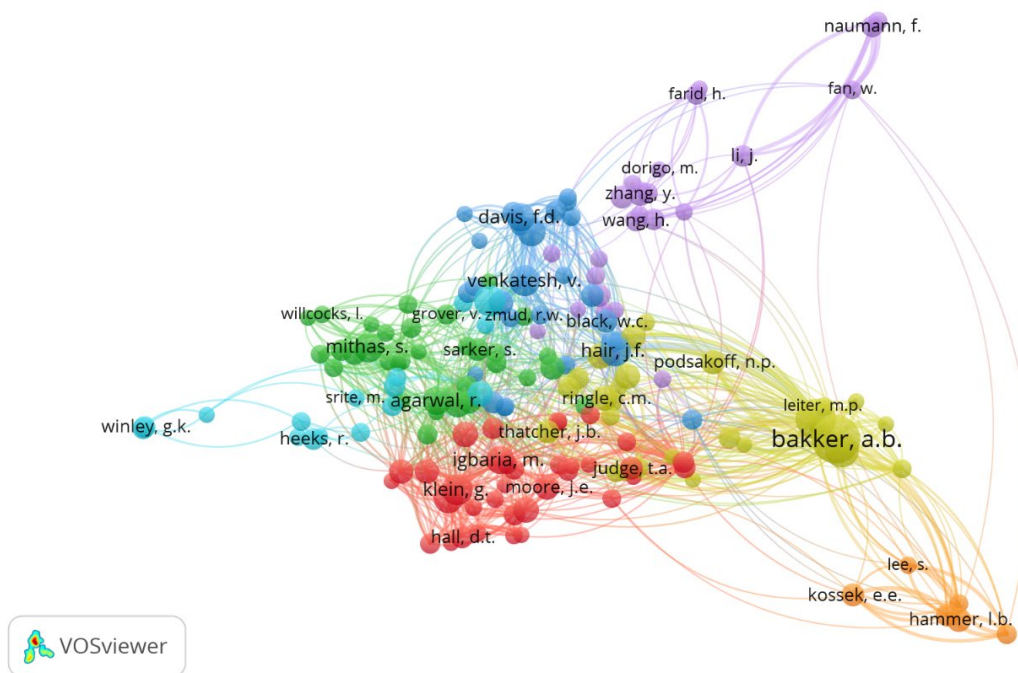
Fig. 4: Co-Citation Analysis-Cited Authors.

Source: own elaboration based on the VOSviewer software.

The author's h-index, g-index, and m-index are also calculated, along with an analysis of the author's impact and their affiliation. The top five authors with the most sway in the IT professional writing world is shown in Table 2. Academic citation metrics like the h-index and g-index have been calculated with the help of the "publish or perish" software. In 2005, Hirsch created the "index to quantify an individual's scientific output" known as the H-index (Hirsch, 2005). The h-index's strength is that it is a single indicator that evaluates both output and influence. It is expected to outperform traditional single-number indicators used to assess academics' scientific output, such as the impact factor, the total number of documents, the total number of citations, the citations per document rate, and the number of highly cited publications (Hirsch, 2005). G-index is superior to h-index in two ways: it gives more weight to citations that documents receive, and it does not restrict an author's output based on how many papers they have written (Costas & Bordons, 2008).The study used the formula h/g to determine the M-index (Qamar & Samad, 2022).Scopus was used to determine the total number of papers, the affiliated institute, the city, and the country.

Table 2: Co-Citation Analysis-Cited Authors.

S.No	Author Name	h index	g index	m index	Total Count	Affiliation	City	Country
1	Arnold B. Bakker	179	457	0.39168	435	Erasmus Universiteit Rotterdam	Rotterdam	Netherlands
2	Schaufeli, Wimar.B.	174	452	0.38496	367	KU Leuven	Leuven	Belgium
3	Demerouti,Evangelia	107	319	0.33542	211	University of Johannesburg	Johannesburg	South Africa
4	Klein,G	212	398	0.53266	806	Karolinska Institute	Stockholm	Sweden
5	Venkatesh, Viswanath	84	275	0.30545	143	Virginia Tech, Pamplin College of Business	Blacksburg	United States

Source: own elaboration.

Countries and Organizations Bibliographic Coupling Analysis

Bibliographic linking occurs when two papers cite the same third paper, and is a method more suited to institutions and countries(Mulet-Forteza et al., 2018). It is a similarity measure that uses citation analysis to establish a similarity relationship between documents. Figure 5. illustrates the bibliographic coupling network map of the most active countries contributing to the theme (with a threshold 5 published papers). Twenty-one countries met this ceiling. The Table 3 below shows each of the countries with the number of articles, citations, article effectiveness and total link strengths. The size of the circles in the map depicts the magnitude of share of publications or contribution from the countries. The distance-based network map shows that closer the two countries are in network, more similar literature references are used.
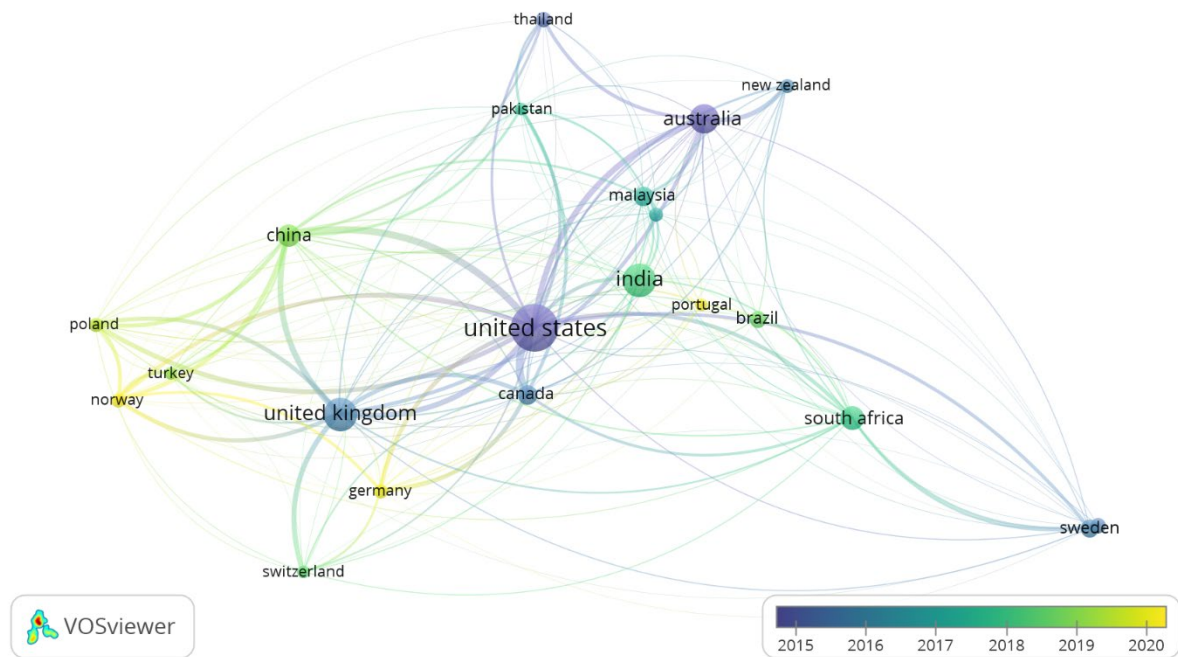
Fig. 5: Countries Bibliographic coupling network map.

Source: own elaboration based on the VOSviewer software.

Table 3: Top 10 most productive countries contributing to the domain of IT Professionals

S. No.	Country	Documents	Citations	Total Link Strength	Article Effectiveness
1	United States	65	2134	2530	32.83076923
2	India	32	207	318	6.46875
3	United Kingdom	31	672	1481	21.67741935
4	Australia	24	414	899	17.25
5	South Africa	17	84	437	4.941176471
6	China	15	139	1242	9.266666667
7	Canada	11	592	1109	53.81818182
8	Malaysia	11	62	299	5.636363636
9	Sweden	10	144	381	14.4
10	Brazil	9	19	53	2.111111111

Source: own elaboration based on the VOSviewer software.

According to the data, the United States has the most total publications (N=65) and citations (N=2134). India ranks at the second position with 32 articles followed by United Kingdom. The countries with highest article effectiveness are Canada (53.81) followed by United States (32.83) and Germany (29.83). According to the total link strength, United States again scores the highest position (2530) followed by United Kingdom and China. From the total link strength measured it can be analysed that more of developed nations have a high degree of convergence than developing nations.
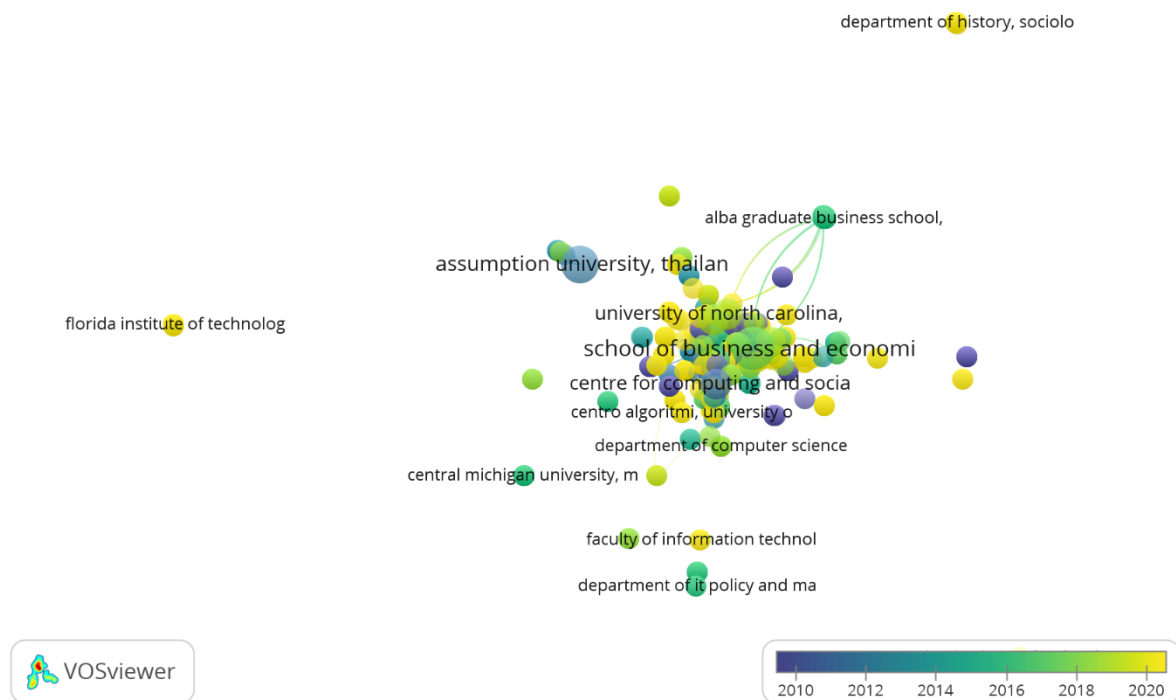

Fig. 6: Institutional Bibliographic coupling network map.
Source: own elaboration based on the VOSviewer software.

Using bibliographic coupling, it is revealed that a total of 573 institutions contributed 294 publications. National University of Singapore, University of Colorado and University of Victoria have the highest citation count of 348 and total link strength at 277. Delft University of Technology and Eurecom stand at second position with citation count of 234 and total link strength at 98. The third rank is shared by Michael F. Price College of Business, University of Oklahoma and University of Queensland, Queensland university of technology with citation count of 158 and total link strength at 72. The total link strength between institutions from various countries indicate more collaborations of institutes from developed countries. This also confirms high degree of convergence in developed nations than developing nations.

Most Cited Articles & High Impact Journals

Citation patterns are vital in developing an understanding which publication have been most significant in the research field being studied. It also enables to recognize the prominent studies in the sample and measures the degree of openness or closure of the extant literature(Fusco & Ricci, 2019). To locate the most influential articles published, the threshold was set as 50 citations. Table 4shows the top ten most highly cited articles along with the name of authors, year of publication and citation count.

Table 4: Top Ten Highly Cited Articles

S. No	Author(s)	Title	Source Title	Citations
1	Lee et al.(2011)	Entrepreneurial Intentions: The Influence of Organizational and Individual Factors	Journal of Business Venturing	348
2	Redi et.al(2011)	Digital Image Forensics: A Booklet for Beginners	Multimedia Tools and Applications	234
3	Shaft and Vessey (2006)	The Role of Cognitive Fit in the Relationship Between Software Comprehension and Modification	MIS Quarterly: Management Information Systems	158
4	Abedjan et.al (2015)	Profiling Relational Data: A Survey	VLDB Journal	153
5	Kimble et.al(2010)	Innovation And Knowledge Sharing Across Professional Boundaries: Political Interplay Between Boundary Objects and Brokers	International Journal of Information Management	150
6	Fuller and Narasimhan (2007)	Information Technology Professionals and The New-Rich Middle Class in Chennai (Madras)	Modern Asian Studies	149
7	Frels et.al (2003)	The Integrated Networks Model: Explaining Resource Allocations in Network Markets	Journal of Marketing	128
8	Hammer et al.(2013)	Measurement Development and Validation of The Family Supportive Supervisor Behavior Short-Form (FSSB-SF)	Journal of Occupational Health Psychology	120

9	Chen et al.(2003)	COPLINK Connect: Information and Knowledge Management for Law Enforcement	Decision Support Systems	116
10	Pee et al.(2010)	Knowledge Sharing in Information Systems Development: A Social Interdependence Perspective	Journal of the Association for Information Systems	106

Source: own elaboration based on citation count from the Scopus database

The analysis of the highest cited paper is based on the theme of innovative work environment and its influence on individual and organisational success in IT professionals. It has been postulated by Lee et al. (2011)that low job satisfaction among IT professionals is linked to an unfavourable innovation climate and/or a lack of incentives for technical excellence in the workplace, which in turn influences entrepreneurial inclinations. Redi et al. (2011)ranked second in their investigation of digital image forensics, which they conducted with an eye toward the IT specialists who might one day work in this area. Their primary focus was on determining the imaging device that captured the image, and their secondary focus was on detecting telltale signs of forgery. Thereafter, Shaft and Vessey (2006) produced a highly cited study. They based their findings on an investigation of software upkeep. A comprehensive picture of how software comprehension and modification are related was revealed. They claim that cognitive fit moderates the connection between comprehension and modification in the context of software maintenance. The results of the study show that it is critical to look beyond simple software comprehension to analyse the complicated relationships between the various kinds of jobs that go into developing software.

A noteworthy observation that can be drawn from the analysis of top ten cited papers is focus of themes. Mostly high impact papers have centralised research relating to software development or upgradation in connect to IT Professionals. Few have studied the impact of work-life balance, personality traits on job satisfaction of information technology professionals. There is certainly a dearth of studies which highlights the relationship between ageism, personal well-being and social welfare of IT professionals.

Research on IT professionals can be found in wide variety of journals. Co-citation analysis of journals examines the co-citation frequency of journals. The journals with highest citation count and centrality degree/link strength can be recognized as the most significant journals in this research field. Co-citation analysis was performed using full counting method to generate a meaningful co-citation network for high impact journals. The threshold criteria were set to be 10, resulting in a total of 143 cited sources. Of the 8142 sources, 143 sources met the threshold criteria. Co-Citation analysis of the cited sources resulted in the formation of eight clusters. Figure 7 shows the co- citation pattern of 143 cited journals. Table 5 lists the top 10 journals, along with the citation count, centrality and the cluster number.

MIS Quarterly ranks first with 191 citation counts. The aim of the journal includes knowledge enhancement and dissemination in the areas of IT service development, IT resource management, and IT use, impact, and economics as they relate to managerial, organisational, and social concerns. Journal of Applied Psychology stands at second position with the

focus primarily considering empirical and theoretical research work that develop understanding of cognitive, motivational, affective, and behavioural psychological phenomena at organizational level. Academy of management journal with bimonthly frequency aims to promote empirical research that tests, extends, or builds management theory and contributes to management practice. An analysis of top ten journals indicates the dominance of cluster 1 and 6. While cluster 1 comprising of 40 items majorly deals with journals in the fields of engineering, decision sciences, information systems etc. Cluster 6 contains has 15 items only and focuses primarily in fields of management, applied psychology, business, management development etc.
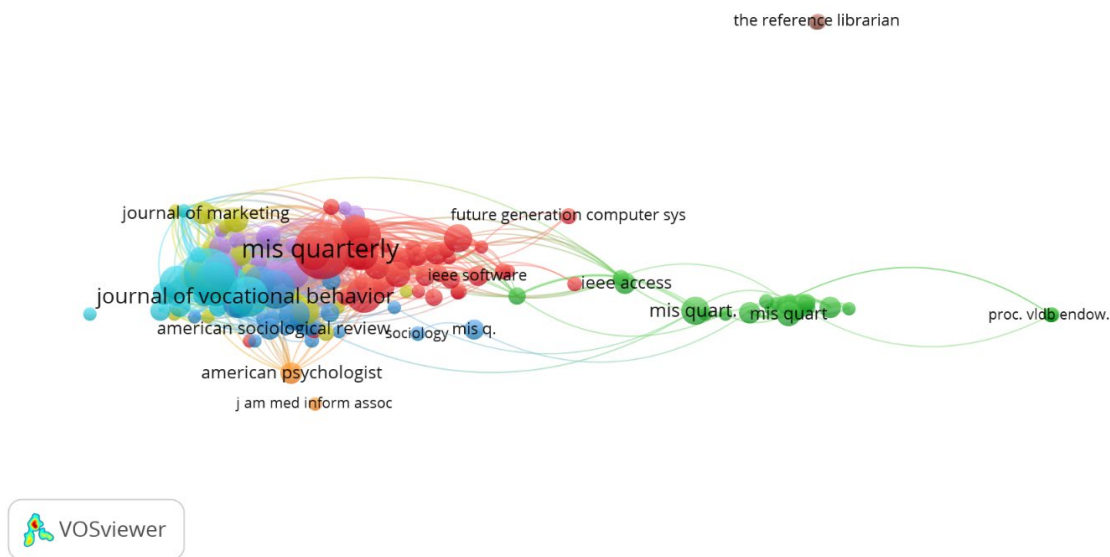

Fig. 7: Co- citation pattern of Journals.

Source: own elaboration based on the VOSviewer software.

Table 5: Top 10 Journals

S. No	Journal	Count	Centrality	Cluster No
1	MIS Quarterly	191	6148	1
2	Journal of Applied Psychology	144	4703	6
3	Academy of Management Journal	110	3957	6
4	Journal of Vocational Behaviour	92	2944	6
5	Academy of Management Review	85	2740	3
6	Communications of the ACM	76	1754	1
7	Journal of Management Information Systems	74	2782	1
8	Journal of Management	69	2472	5
9	Information & Management	64	1857	1
10	Journal of Organizational Behaviour	64	2075	6

Source: own elaboration based on citation count from the Scopus database

Discussion

The analysis presented above, based on performance bibliometric analysis of the research area, answers the three research questions thereby (RQ1) Which authors, articles, journals, institutions and countries are dominant in research relating to information technology professionals or IT professionals? (RQ2) What are the most frequent used keywords relating to information technology professionals or IT professionals? and (RQ3) Which areas involving information technology professionals or IT professionals need additional study?

In this study a total of 294 publications published during 1998 to mid-year 2022 in Scopus database on "IT professionals". A yearly increase in publications was noticed during the period understudy on our topic. This demonstrates growing interest of new scholars in the research field of IT. The publications were contributed by 573 institutions from 74 countries, of which USA and India ranked first and second respectively. The most prolific institutions were found to be National University of Singapore, University of Colorado and University of Victoria having the highest citation count of 348 and total link strength at 277. The two most prolific authors were Bakker, A.B and Schaufeli, W.B. with 81 and 56 citations respectively. On the basis of citation count the rank 1 and 2 Journals publishing on IT professional are MIS Quarterly and Journal of Applied Psychology. Analysis of keywords shows that the research topics emphasis on several themes, such as information technology, job satisfaction, information systems, cloud computing, human resource management, gender, knowledge management, artificial intelligence, stress and motivation. It is important to note that ageism in IT Professionals has not been much significance by the researchers although age plays a crucial role specially in a field which requires upgradations from time to time. Therefore, the result might help other research scholars to define new research future avenues, or novices to explore potential collaboration with the established research group.

Conclusion, Future Research Directions & Limitations

This article is one of the few that uses bibliographic data from the Scopus database to do a bibliometric analysis of the growth of research conducted by IT professionals from the late 1990s to the present day. This article provides a high-level summary of the IT industry, its major players, and the most promising areas for further study. Scholars interested in the IT

profession or in laying the groundwork for new lines of inquiry in the IT industry will find the information offered here useful.

As a result of the research in this field, the has proposed a number of future lines of inquiry, some of which are as follows: Articles about IT workers and their ability to strike a work-life balance; IT workers and the physical limitations they face; issues of IT employee retention and departure; IT workers attrition and age; focusing on IT professionals and ageism and other linked issues.

There are some caveats to this study. To begin, all citation information was obtained from the Scopus database. While Scopus is the most comprehensive database, it does not include all articles written about IT specialists. Second, the evolution of just published publications was analysed in this study. The same kind of analysis may be done on other types of documents, such conference papers, to get a more comprehensive picture of the state of the art in this area of study. Finally, the study evaluates the period's (the late 1990s through the present) overall impact on scholarly work around the world.

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No potential conflict of interest was reported by the authors.

References

Abedjan, Z., Golab, L., & Naumann, F. (2015). Profiling relational data: A survey. *VLDB Journal*, 24(4), 557–581. https://doi.org/10.1007/s00778-015-0389-y

Abey, J., & Velmurugan, R. (2022). Job Satisfaction of Generation Y Information Technology Professionals India. *International Journal of Mechanical Engineering*, 7(1), 494–498. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122399210&partnerID=40&md5=5edd403f8488e36e6254b487c8090896

Adam, M., Rahim, N. Z. A., & Miskon, S. (2015). A proposed framework for standardizing information technology professional skills and evaluation schema for new it employees. *ARPN Journal of Engineering and Applied Sciences*, 10(23), 17588–17595. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84953426351&partnerID=40&md5=05340b0b2b831d094ef92c839cecd8d0

Adya, M. P. (2019). Against all odds: Culture and context in the female information technology professional's career choice and experiences. In *Cracking the Digital Ceiling: Women in Computing Around the World*. Cambridge University Press. https://doi.org/10.1017/9781108609081.008

Agarwal, R., & Ferratt, T. W. (2000). Retention and the career motives of IT professionals. *Proceedings of the ACM SIGCPR Conference*, 158–166. https://doi.org/10.1145/333334.333384

Akbulut, A. Y., & Looney, C. A. (2007). Attracting students to the IS major: The role of it sophistication in introductory IS courses. *Association for Information Systems - 13th Americas Conference on Information Systems, AMCIS 2007: Reaching New Heights*, 3, 1908–1917. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84870154709&partnerID=40&md5=1e16bb22138a038a6cb78520eae87ce1

Alamelu, R., Lakshminarayanan, K. V., & Badrinath, V. (2017). Persistence of employability skills among it software professionals—An analysis. *International Journal of Applied Business and Economic Research*, 15(13), 325–333. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85034976959&partnerID=40&md5=c0005a08885eea603cb7c6884c1ac2fd

Al-Shaikh, F. N., Nusir, S., & Abu Haifa, W. (2018). Information technology professionals' ethics: The case of Jordan. In S. K.S (Ed.), *Proceedings of the 32nd International Business Information Management Association Conference, IBIMA 2018—Vision 2020: Sustainable Economic Development and Application of Innovation Management from Regional expansion to Global Growth* (pp. 1158–1178). International Business Information Management Association, IBIMA. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063026462&partnerID=40&md5=24bde192cb235cc999092adc408fb17d

Al-Shammari, E. T. (2021). Investigation of Factors Affecting Employee Satisfaction of IT Sector. *International Journal of Advanced Computer Science and Applications*, 12(2), 259–268. https://doi.org/10.14569/IJACSA.2021.0120233

Ayedee, N., Kumar, A., Buttan, A., & Shaikh, A. A. (2021). Role of emotional intelligence and strategic human resource management during COVID-19 pandemic. *Academy of Strategic Management Journal*.

Bansal, D., & Pathak, V. N. (2020). Personality as a predictor of occupational stress, general health and job satisfaction among it professionals. *Defence Life Science Journal*, 5(1), 25–30. https://doi.org/10.14429/dlsj.5.14620

Brindha, A. K., Murthy, S., Trout, K., Singh, A. K., Surapaneni, K. M., & Joshi, A. (2015). Dry eyes among information technology professionals in India. *International Eye Science*, 15(8), 1303–1308. https://doi.org/10.3980/j.issn.1672-5123.2015.8.01

Bury, R. (2010). Women, work and Web 2.0: A case study. *New Technology, Work and Employment*, 25(3), 223–237. https://doi.org/10.1111/j.1468-005X.2010.00250.x

Chakrabarti, S., & Guha, S. (2016). Differentials in Information Technology Professional Category and Turnover Propensity: A Study. *Global Business Review*, 17, 90S-106S. https://doi.org/10.1177/0972150916631086

Chen, H., Schroeder, J., Hauck, R. V., Ridgeway, L., Atabakhsh, H., Gupta, H., Boarman, C., Rasmussen, K., & Clements, A. W. (2003). COPLINK connect: Information and knowledge management for law enforcement. *Decision Support Systems*, 34(3), 271–285. https://doi.org/10.1016/S0167-9236(02)00121-5

Comber, O., Motschnig, R., Gobl, B., Mayer, H., & Ceylan, E. (2021). Exploring students' stereotypes regarding computer science and stimulating reflection on roles of women in IT. *Proceedings - Frontiers in Education Conference, FIE, 2021-October*. https://doi.org/10.1109/FIE49875.2021.9637327

Coombs, C. R. (2009). Improving retention strategies for IT professionals working in the public sector. *Information and Management*, 46(4), 233–240. https://doi.org/10.1016/j.im.2009.02.004

Costas, R., & Bordons, M. (2008). Is g-index better than h-index? An exploratory study at the individual level. *Budapest Scientometrics*, *77*, 267–288. https://doi.org/10.1007/s11192-007-1997-0

Cotton, J., & Adya, M. (2018). The impact of E-mentoring on information technology professionals. *SIGMIS-CPR 2018 - Proceedings of the 2018 ACM SIGMIS Conference on Computers and People Research*, 119–122. https://doi.org/10.1145/3209626.3209715

Crichigno, J., Bou-Harb, E., Kfoury, E., Gomez, J., & Mangino, A. (2020). Training and teaching students and IT professionals on high-throughput networking and cybersecurity using a private cloud. *ASEE Annual Conference and Exposition, Conference Proceedings*, *2020-June*. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095766281&partnerID=40&md5=c21aed8c10d6765216223a955005a807

Cruz, D., & Luna, A. (2022). Machine Learning—Based Risk Assessment on Stress of IT Employees Working from Home During the COVID-19 Pandemic in the Philippines. *International Journal of Emerging Technology and Advanced Engineering*, 12(6), 132–140. https://doi.org/10.46338/ijetae0622_17

Davis, J. B., Pawlowski, S. D., & Houston, A. (2006). Work commitments of baby boomers and Gen-Xers in the it profession: Generational differences or myth? *Journal of Computer Information Systems*, 46(3), 43–49. https://www.scopus.com/inward/record.uri?eid=2-s2.0-33744511162&partnerID=40&md5=b02118f46fffa742cb690c0f2d97beaf

Davison, R. M., Martinsons, M. G., Ou, C. X. J., Murata, K., Drummond, D., Li, Y., & Lo, H. W. H. (2009). The ethics of IT professionals in Japan and China. *Journal of the Association for Information Systems*, 10(11), 834–859. https://doi.org/10.17705/1jais.00212

Dick, G. (1994). Raising the awareness of ethics in IT students: Further development of the teaching model. In K. J.M (Ed.), *Proceedings of the Conference on Ethics in the Computer Age, ECA 1994* (pp. 69–73). Association for Computing Machinery, Inc. https://doi.org/10.1145/199544.199589

Fortuna, P., & Gorbaniuk, O. (2022). What Is Behind the Buzzword for Experts and Laymen: Representation of "Artificial Intelligence" in the IT-Professionals' and Non-Professionals' Minds. *Europe's Journal of Psychology*, 18(2), 207–218. https://doi.org/10.5964/ejop.5473

Frels, J. K., Shervani, T., & Srivastava, R. K. (2003). The integrated networks model: Explaining resource allocations in network markets. *Journal of Marketing*, 67(1), 29–45. https://doi.org/10.1509/jmkg.67.1.29.18586

Fuller, C. J., & Narasimhan, H. (2007). Information technology professionals and the new-rich middle class in Chennai (Madras). *Modern Asian Studies*, 41(1), 121–150. https://doi.org/10.1017/S0026749X05002325

Fusco, F., & Ricci, P. (2019). What is the stock of the situation? A bibliometric analysis on social and environmental accounting research in public sector. *International Journal of Public Sector Management*, 32(1), 21–41. https://doi.org/10.1108/IJPSM-05-2017-0134

Gayathri, M., Duraisamy, R., & Kumar, M. P. S. (2018). Effects of stress on oral health among information technology professionals in chennai. *Drug Invention Today*, 10(8), 1468–1473. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85051176645&partnerID=40&md5=ebff64a9b88f5a010b19dd467193eac6

Hammer, L. B., Kossek, E. E., Bodner, T., & Crain, T. (2013). Measurement development and validation of the family supportive supervisor behavior short-form (FSSB-SF). *Journal of Occupational Health Psychology*, *18*(3), 285–296. https://doi.org/10.1037/a0032612

Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences*, 102(46), 16569–16572. https://doi.org/10.1073/pnas.0507655102

Ingole, J. R., Patel, R. D., & Ingole, S. I. (2015). Opportunistic screening of vitamin b12 deficiency in it professionals presenting for routine health check-up. *Journal of Clinical and Diagnostic Research*, 9(12), OC01–OC02. https://doi.org/10.7860/JCDR/2015/16191.6866

Jnaneswar, K. (2016). Relationship between work—Life balance, turnover intention, and organizational support for work—Life balance: A study in the IT industry in Kerala. *Prabandhan: Indian Journal of Management*, 9(5), 33–44. https://doi.org/10.17010/pijom/2016/v9i5/92569

Jones, S. (2016). Doing the right thing: Computer ethics pedagogy revisited. *Journal of Information, Communication and Ethics in Society*, 14(1), 33–48. https://doi.org/10.1108/JICES-07-2014-0033

Joseph, A. A., Xuan, T. H. L., Kipli, K., Chin, K. L., & Song, N. S. (2018). Smart Body Temperature Monitoring system for Children via Mobile. *2018 International Conference on Computational Approach in Smart Systems Design and Applications, ICASSDA 2018*. https://doi.org/10.1109/ICASSDA.2018.8477613

Kamalanabhan, T. J., Sai, L. P., & Mayuri, D. (2009). Employee engagement and job satisfaction in the information technology industry. *Psychological Reports*, 105(3), 759–770. https://doi.org/10.2466/PR0.105.3.759-770

Kannika, D., & Chockalingam, S. M. (2019). Quality of worklife: Importance in small scale industries for employees. *International Journal of Recent Technology and Engineering*, 8(3), 8839–8843. https://doi.org/10.35940/ijrte.c6670.098319

Karpefors, M., & van Riemsdijk, M. (2020). 'We are not free here…'–Palestinian IT students' (im)mobile transition from university to employment or further education. *Journal of Education and Work*, *33*(1), 19–32. https://doi.org/10.1080/13639080.2019.1704705

Khalil, O. E. M., & Seleim, A. A. S. (2012). Attitudes towards information ethics: A view from Egypt. *Journal of Information, Communication and Ethics in Society*, 10(4), 240–261. https://doi.org/10.1108/14779961211285872

Khatri, B., Arora, S., & Goyal, A. (2022). Association between Outcomes of Physical activities and Sports on Work-Life Balance of Employees. *International Journal of Human Movement and Sports Sciences*, *1*0(2), 316–323. https://doi.org/10.13189/saj.2022.100223

Kimble, C., Grenier, C., & Goglio-Primard, K. (2010). Innovation and knowledge sharing across professional boundaries: Political interplay between boundary objects and brokers. *International Journal of Information Management*, 30(5), 437–444. https://doi.org/10.1016/j.ijinfomgt.2010.02.002

Kumar, A. (2019). Strategic HRM practices to deal with gender diversity problems in organizations. *JSHRM*, *8*(3).

Kumar, A., Pujari, P., & Gupta, N. (2021). Artificial Intelligence: Technology 4.0 as a solution for healthcare workers during COVID-19 pandemic. *Acta Universitatis Bohemiae Meridionalis*, 24(1), 19–35.

Kumaresan, A., Suganthirababu, P., Srinivasan, V., Vijay Chandhini, Y., Divyalaxmi, P., Alagesan, J., Vishnuram, S., Ramana, K., & Prathap, L. (2022). Prevalence of burnout syndrome among Work-From-Home IT professionals during the COVID-19 pandemic. *Work*, *71*(2), 379–384. https://doi.org/10.3233/WOR-211040

Lan, G. Z., Cayer, N. J., & Riley, L. (2005). How Can Local Government Become an Employer of Choice for Technical Professionals? Lessons and Experiences From the City of Phoenix. *Review of Public Personnel Administration*, 25(3), 225–242. https://doi.org/10.1177/0734371X05276218

Lee, L., Wong, P. K., Foo, M. Der, & Leung, A. (2011). Entrepreneurial intentions: The influence of organizational and individual factors. *Journal of Business Venturing*, 26(1), 124–136. https://doi.org/10.1016/j.jbusvent.2009.04.003

Leigh, E. C. P., Von Hellens, L. A., & Nielsen, S. H. (2009). Childhood interest in IT and the choice of IT as a career: The experiences of a group of IT professionals. *SIGMIS CPR'09 - Proceedings of the 2009 ACM SIGMIS Computer Personnel Research Conference*, 33–39. https://doi.org/10.1145/1542130.1542138

Lundberg, G. M., Krogstie, B., & Krogstie, J. (2021). From employable to fully operational: The need for training of computer science graduates. *International Journal of Engineering Pedagogy*, 11(3), 21–38. https://doi.org/10.3991/IJEP.V11I3.19995

Mahindru, R., Sethi, P., Kapoor, N., College, K., & Singh, D. (2023). *Research perspectives and trends of board diversity and corporate governance: A review and bibliometric analysis*. *27*(4).

Mathivadani, Preetha, S., & Priya, J. (2018). Evaluation of pulmonary function testing on information technology professionals. *Drug Invention Today*, 10(11), 2241–2243. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069772197&partnerID=40&md5=b9c3ad681d3baf90c370674ebae841ac

Mergel, I., Bellé, N., & Nasi, G. (2021). Prosocial Motivation of Private Sector IT Professionals Joining Government. *Review of Public Personnel Administration*, 41(2), 338–357. https://doi.org/10.1177/0734371X19886058

Mishra, A., Akman, I., & Yazici, A. (2006). Software piracy among IT professionals in organizations. *International Journal of Information Management*, 26(5), 401–413. https://doi.org/10.1016/j.ijinfomgt.2006.01.004

Mohandoss, M., Sharan, D., Ranganathan, R., & Jose, J. (2014). Co morbidities of Myofascial Neck Pain among Information Technology Professionals. *Annals of Occupational and Environmental Medicine*, 26(1). https://doi.org/10.1186/s40557-014-0021-4

Mulet-Forteza, C., Martorell-Cunill, O., Merigó, J. M., Genovart-Balaguer, J., & Mauleon-Mendez, E. (2018). Twenty five years of the Journal of Travel & Tourism Marketing: A bibliometric ranking. *Journal of Travel & Tourism Marketing*, 35(9), 1201–1221. https://doi.org/10.1080/10548408.2018.1487368

Naqvi, S. M. M. R., & Bashir, S. (2015). IT-expert retention through organizational commitment: A study of public sector information technology professionals in Pakistan. *Applied Computing and Informatics*, 11(1), 60–75. https://doi.org/10.1016/j.aci.2011.11.001

Padmaja, P., Kulkarni, S., Doshi, D., Reddy, S., Reddy, P., & Reddy, K. S. (2018). Impact of health locus of control on oral health status among a cohort of IT professionals. *Oral Health and Preventive Dentistry*, 16(3), 259–264. https://doi.org/10.3290/j.ohpd.a40757

Papagiannidis, S., Harris, J., & Morton, D. (2020). WHO led the digital transformation of your company? A reflection of IT related challenges during the pandemic. *International Journal of Information Management*, 55. https://doi.org/10.1016/j.ijinfomgt.2020.102166

Pee, L. G., Kankanhalli, A., & Kim, H.-W. (2010). Knowledge sharing in information systems development: A social interdependence perspective. *Journal of the Association for Information Systems*, 11(10), 550–575. https://doi.org/10.17705/1jais.00238

Porto Bellini, C. G., Palvia, P., Moreno, V., Jacks, T., & Graeml, A. (2019). Should I stay or should I go? A study of IT professionals during a national crisis. *Information Technology and People*, 32(6), 1472–1495. https://doi.org/10.1108/ITP-07-2017-0235

Pritchard, A. (1969). Statistical Bibliography or Bibliometrics? *Journal of Documentation*, 25, 348–349.

Qamar, Y., & Samad, T. A. (2022). *Human resource analytics: A review and bibliometric analysis*. 51(1), 251–283. https://doi.org/10.1108/PR-04-2020-0247

Redi, J. A., Taktak, W., & Dugelay, J. L. (2011). Digital image forensics: A booklet for beginners. *Multimedia Tools and Applications*, 51(1), 133–162. https://doi.org/10.1007/s11042-010-0620-1

Rodino-Colocino, M. (2012). Geek jeremiads: Speaking the crisis of job loss by opposing offshored and H-1B labor. *Communication and Critical/ Cultural Studies*, 9(1), 22–46. https://doi.org/10.1080/14791420.2011.645490

Santhosh Krishna, B. V., Jijin Godwin, J., Aline Gratia, A., Keerthanaa, K., & Kiruthika, B. (2021). Wearable Jacket for Posture Correction Using Flexible Fabric Stretch Sensor for Working Age Groups. *Lecture Notes in Networks and Systems*, *179 LNNS*, 315–324. https://doi.org/10.1007/978-981-33-4687-1_30

Sasaki, H., Serenko, A., Sato, O., & Palvia, P. (2019). Determinants of job satisfaction and turnover intention of IT professionals in Japan. *25th Americas Conference on Information Systems, AMCIS 2019*. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084023557&partnerID=40&md5=79ca201378c61e06e2676b4940b9b0ec

Seymour, L., & Nadasen, K. (2007). Web access for IT staff: A developing world perspective on web abuse. *Electronic Library*, *25*(5), 543–557. https://doi.org/10.1108/02640470710829532

Shaft, T. M., & Vessey, I. (2006). The role of cognitive fit in the relationship between software comprehension and modification. *MIS Quarterly: Management Information Systems*, 30(1), 29–55. https://doi.org/10.2307/25148716

Sharma, S., & Aparicio, E. (2022). Organizational and team culture as antecedents of protection motivation among IT employees. *Computers and Security*, *120*. https://doi.org/10.1016/j.cose.2022.102774

Small, H. (2003). Paradigms, citations, and maps of science: A personal history. *Journal of the American Society for Information Science and Technology*, 54(5), 394–399. https://doi.org/10.1002/asi.10225

Smitha, M. C., Shree, A., Hari, A., & Narayana Murthy, M. R. (2019). Prevalence of musculoskeletal disorders and visual problems among software engineers and its association with work related variables. *Indian Journal of Public Health Research and Development*, *10*(8), 321–326. https://doi.org/10.5958/0976-5506.2019.01901.6

Stahl, B. C., & Wood, C. (2006). Forming IT professionals in the internet age: A critical case study. In *Managing IT Professionals in the Internet Age*. IGI Global. https://doi.org/10.4018/978-1-59140-917-5.ch006

Stray, V., Florea, R., & Paruch, L. (2022). Exploring human factors of the agile software tester. *Software Quality Journal*, 30(2), 455–481. https://doi.org/10.1007/s11219-021-09561-2

Umakanth, K., Mohanraj, K. G., & Smiline Girija, A. S. (2020). Knowledge, prevalence and risk factors of carpal tunnel syndrome in young, adult and middle-aged information technology professionals. *International Journal of Research in Pharmaceutical Sciences*, 11(Special Issue 3), 1179–1186. https://doi.org/10.26452/ijrps.v11iSPL3.3361

Valk, R., & Srinivasan, V. (2011). Work-family balance of Indian women software professionals: A qualitative study. *IIMB Management Review*, 23(1), 39–50. https://doi.org/10.1016/j.iimb.2010.10.010

Van Heerden, J., Du Plessis, M., & Becker, J. R. (2022). Walking the Tightrope of Job Demands and Resources: Leveraging Work Engagement to Counter Turnover Intentions of Information Technology Professionals. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.660308

Vimala, B., & Madhavi, C. (2009). A study on stress and depression experienced by women IT professionals in Chennai, India. *Psychology Research and Behavior Management*, *2*, 81–91. https://doi.org/10.2147/PRBM.S6049

Wickramasinghe, V., & Jayaweera, M. (2011). Career management strategies among IT professionals in offshore outsourced IT firms in Sri Lanka. *Journal of Management Development*, 30(9), 914–926. https://doi.org/10.1108/02621711111164376

Zhang, X., Ryan, S. D., Prybutok, V. R., & Kappelman, L. (2012). Perceived obsolescence, organizational embeddedness, and turnover of IT workers: An empirical study. *Data Base for Advances in Information Systems*, 43(4), 12–32. https://doi.org/10.1145/2398834.2398837