Exploring career shifts to IT: motivations and mechanisms

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ABSTRACT: For several decades, there has been growing scholarly interest in understanding how individuals can remain employable and successfully make career shifts throughout their working lives. While career shifting and employability are often linked in contemporary literature, they have developed as distinct concepts over time, each with its own historical background. In this article, the authors delve into the reasons behind career shifting, especially to the IT field and explore the mechanism of this shift. A questionnaire survey was administered to a convenient sample of 125 university students to achieve this. The findings suggest that students make career shifts to the IT field for several reasons, mainly to remain employable, especially in today's dynamic job market. However, the mechanism of this shifting varies among students. The article ends with discussing the empirical findings of the data and suggesting pathways for future research.

INTRODUCTION

Being employable in today's dynamic job market requires more than just the right qualifications; it involves a continuous commitment to learning, adaptability and resilience. As industries evolve and new technologies emerge, individuals must be prepared to shift careers or roles, often multiple times throughout their working lives [1][2]. Career shifting can be daunting, whether by choice or necessity, but it also presents opportunities for growth and reinvention. Successful shifts are often marked by an individual's ability to leverage transferable skills, expand their professional network and embrace lifelong learning. In this situation, retaining employability turns into a continuous process of developing one's skills, building one's personal brand, and keeping up with market trends to make sure one's career can adjust to the unavoidable shifts in the employment market.

A career is the course of a person's professional life; it includes the occupations, roles, experiences and knowledge that develop over the course of time. It encompasses not just formal paid work but also the growth of one's professional and personal life brought about by education, training and the acquisition of new skills [3][4]. An individual's objectives, preferences, interests and values can influence their job, as can outside variables like shifts in the market, the state of the economy and advancements in technology. Unlike the conventional beliefs of a single career path, modern jobs are characterised by flexibility, adaptability and lifelong learning. Further, people are urged to modify their professional character and seek possibilities aligning with their evolving goals and personal development [1][5]. Rather than the standard to follow a single, linear career path or *one life, one career*.

Career shifting which is also known as transition, refers to the change of the job, professional roles and environments over the course of an individual's career. Moving from education to employment or from unemployment to work are not considered transitions. Career shifting or transitions differ in type, scale and direction and may happen in a repetitive manner during a person's work life [6]. It includes changes in employers, professions, industries, or even types of employment contracts (e.g. from permanent to temporary roles or from employee to independent contractor). Further, career shifting leads to personal changes that can range from minor adjustments to significant life changing events like switching careers, which may require mastering new skills [7]. Such changes can have an impact on overall career sustainability and financial stability [8]. Therefore, an individual's career path and life course are significantly influenced by career shifts.

Both personal and professional reasons can lead an individual to a career shift. Individuals who feel that they are unchallenged or underappreciated look for more fulfilment or job satisfaction. Another reason for career shifting is trying to achieve a better work-life balance, mainly if the current position is demanding or requires excessive hours, which can negatively affect the personal wellbeing. Due to economic considerations, such as lack of growth possibilities, lack of salary progression or job instability in particular industries, people strive for more stable and

profitable careers. Additionally, changes in business trends and technology plays a role in pushing professionals to acquire new skills and change professions to secure better opportunities with higher potential for success, growth and advancement. Many reasons can lead people to change careers, such as having a strong interest in a different industry, adjusting to changes in their personal or familial lives, the need to work in an area that aligns with their values or to keep up with the rapid technological changes around the world. In the end, changing careers is a reflection of seeking personal development, flexibility and fulfilment [2][9-11].

The massive growth of the digital economy and the increasing dependence on technology in many aspects has created a significant demand for IT professionals who may expect high wages, stable employment and a variety of career opportunities. These are among the essential factors that led to a remarkable increase in career shifts to information technology (IT). The dynamic nature of IT, its potential for innovation, and the opportunity to work in cutting-edge fields like data science, cloud computing, cybersecurity and artificial intelligence all tempt many people to pursue careers in IT. The emergence of coding bootcamps and the easily accessible on-line learning platforms which usually offer free courses played a crucial role in career shifting to IT because professionals with non-technical backgrounds can obtain the necessary certifications and abilities required for IT employment. Additionally, the flexibility and remote work opportunities that many IT positions offer attract people who are looking for a better work-life balance. Thus, individuals from different backgrounds, including finance, marketing, education and even the arts, have been drawn to pursue employment in IT, contributing to the growing workforce of the industry [12][13].

Choosing a career path has become more challenging for students because of the dynamic nature of the labour market and the uncertainty surrounding future prospects [14]. Students find it challenging to forecast which jobs will provide stability and growth due to the rise of new sectors and the collapse of established ones brought about by technological advancements, automation and changing business demands. Furthermore, it can be extremely daunting and overwhelming to consider so many possibilities and feel pressured to make decisions quickly. Confusion is another issue that many students face because of conflicting advice regarding the value of pursuing their hobbies vs picking useful, in-demand careers. Students must negotiate a world where long-term job stability is no longer guaranteed, which makes decision-making even more difficult in light of the emergence of the gig economy, freelancing and non-traditional work arrangements. Because of this, making decisions is unclear, necessitating that students be flexible, constantly pick up new abilities, and choose careers in an uncertain world [15][16]. Thus, this study aims to delve into the reasons behind career shifting among university students, especially to the IT field, and explore the mechanism of this shift.

MATERIALS AND METHODS

This descriptive study explores a phenomenon while depicting the current situation and enabling a decision to be made. This study aims to delve into the reasons and mechanisms of career shifting to the IT field. Primary data were collected using a highly structured quantitative instrument, a self-administered questionnaire [17][18]. The questionnaire consisted of three parts; the first part focused on the demographic characteristics of participants, which included general background characteristics: age, gender, current major and level of education. The second part focused on the motivation and reasons behind the career shift to the IT field, and finally, the third part focused on the mechanism of this shift.

Concerning the pre-test of the questionnaire and as a fulfilment of the face and content validity requirements, the questionnaire was sent to a panel of high-profile academics in Jordan for their feedback, and their comments were addressed. The questionnaire items were assessed using a five-point Likert scale. Data were collected over a period of eight weeks (March to May 2024) from a convenient sample of university students in Jordan approached by e-mail and through social media platforms.

In this study, the authors initially aimed for a sample size of 370 responses based on Cochran's formula [19], which would ensure a 95% confidence level with a 5% margin of error for a large population. However, given that the population size of individuals transitioning to IT in Jordan is relatively small and difficult to access, it was possible to collect only 123 responses. The margin of error was recalculated using Cochran's formula for finite populations. With a 95% confidence level and maximum variability (p = 0.5), the margin of error for this sample size is approximately 8.8%. While this is higher than the desired 5%, it still provides valuable insights into the target population. The higher margin of error will be acknowledged in the analysis and interpretation of the results, considering the challenges in acquiring more responses from this niche population.

RESULTS AND DISCUSSION

The survey was filled in by 123 respondents (86 males and 37 females) and categorised into five age groups: 20-25, 26-30, 31-35, 36-40 and above 40 years, providing insights into trends across different stages of career progression. Both male and female respondents participated, enabling a comparative analysis of gender distribution across these age groups. The gender distribution reveals notable differences between males and females. Among females, the majority (70.27%) are concentrated in the 20-25 age group, with a smaller proportion (29.73%) in the 26-30 age group and no representation in the 31-35 age group. In contrast, males exhibit a more balanced distribution, with 47.67% in the 20-25 age group, 46.51% in the 26-30 age group and a smaller proportion (5.81%) in the 31-35 age group.

For the groups aged 36-40 and above 40, there are no career shifts to IT roles, suggesting that such decisions are predominantly made at earlier stages of career progression. The majority of the sample population is distributed within the first two age groups (20-25 and 26-30), highlighting that career shifts to IT are most common during the early stages of study or career development. This aligns with the expectation that individuals are more likely to consider significant career changes when they are younger. Figure 1 shows the percentage distribution of gender by age groups.

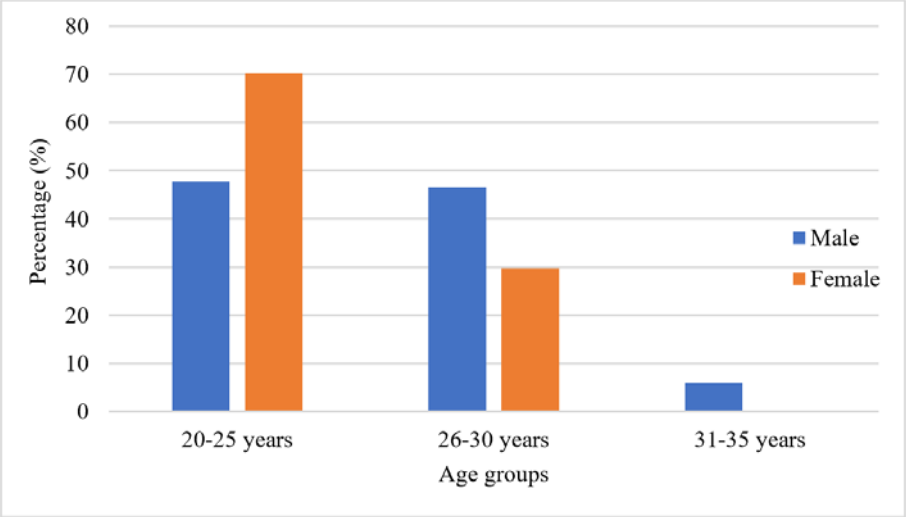

Figure 1: Percentage distribution of gender by age groups.

Further, the survey results on job success following a transition to an IT career, analysed by gender, show an intriguing pattern. Among male respondents, 65% reported success in their IT careers, while 35% did not. For female respondents, a slightly higher success rate was observed, with 70% reporting successful transitions and 30% indicating otherwise.

These findings emphasise that both genders achieve substantial success rates, with females showing a slightly higher rate of success in transitioning to IT careers. The survey results on job success after transitioning to an IT career highlight notable trends across age groups. Among respondents aged 20-25, 50% reported successful transitions, showcasing the adaptability and potential of younger individuals. The success rate increases slightly to 60% for the 26-30 age group, suggesting some challenges as career paths become more defined. For those aged 31-35, the success rate rises significantly to 70%, indicating greater ease in transitioning to IT careers with advancing age. These results imply that older individuals may navigate career shifts more effectively, potentially benefiting from greater maturity and experience. Figure 2 illustrates job success after IT career transition by age groups.

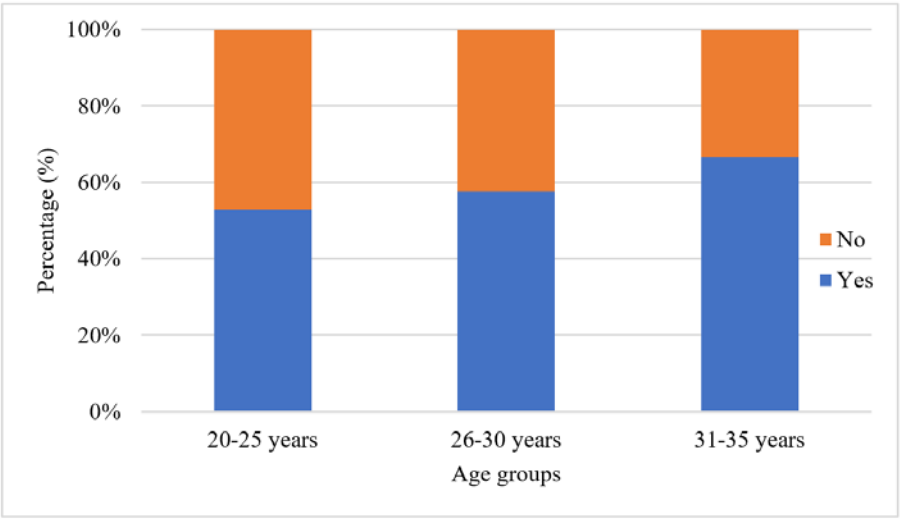

Figure 2: Job success after IT career transition by age groups.

Moreover, Figure 3 highlights the key motivations for individuals transitioning to IT careers broken down by age groups. Younger individuals (20-25 years) are largely motivated by influence of friends, family and mentors and interest in technology. This reflects the keen interest for young individuals in dynamic and sustainable careers. The potential for higher salaries stands out as a critical factor across all age groups, with slightly lower emphasis among the oldest group covered by this study (31-35 years). Distinct trends were revealed by analysing the different motivations for transition to IT based on the age groups.

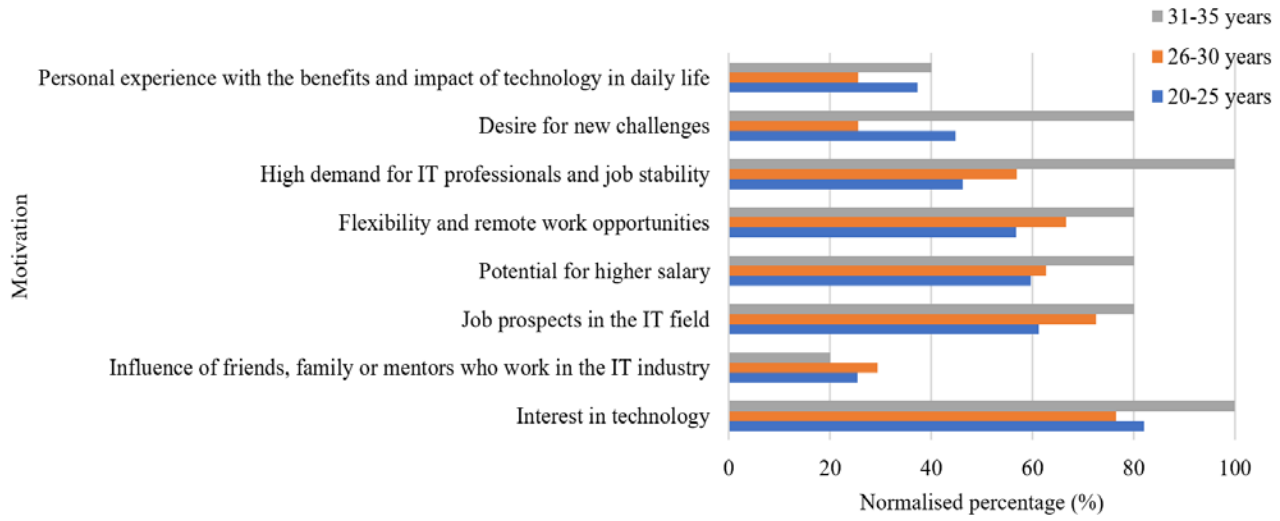

Figure 3: Motivations for transition to IT by age groups.

Additionally, the age group (20-25 years) which is the youngest showed significant alignment with motivations like interest in technology, which seems to be significant for all age groups. On the other hand, older participants (31-35 years) were highly motivated by the high demand for IT professionals and interest in technology. Overall, the results highlight that younger participants prioritise interest in technology and influence of others, while older individuals lean toward practical and stable career transitions, making these motivations essential for tailoring IT programmes and support systems to diverse age groups. These findings show that transitioning into IT can be influenced by a combination of financial prospects, lifestyle preferences and career goals. It is worth mentioning that the data was normalised across different age groups, to ensure more accurate and meaningful comparisons between groups, as the participants were allowed to select more than one motivation.

The analysis of motivations for transitioning to the IT field based on gender reveals distinct patterns in priorities between males and females. The most cited motivation across genders is interest in technology, with both males and females demonstrating significant alignment in this area. Females also showed a slightly higher tendency to value job prospects in IT field. Conversely, males were more influenced by friends, family and mentors who work in the IT field and potential for higher salary, reflecting pragmatic career considerations. Notably, flexibility and remote work opportunities were also impactful but still relevant, with a stronger weight among males. These insights highlight how intrinsic interests and career stability are pivotal drivers for both genders, while lifestyle flexibility holds more appeal for males. This nuanced understanding of motivations can inform tailored career transition programs. Figure 4 represents motivations for transition based on gender.

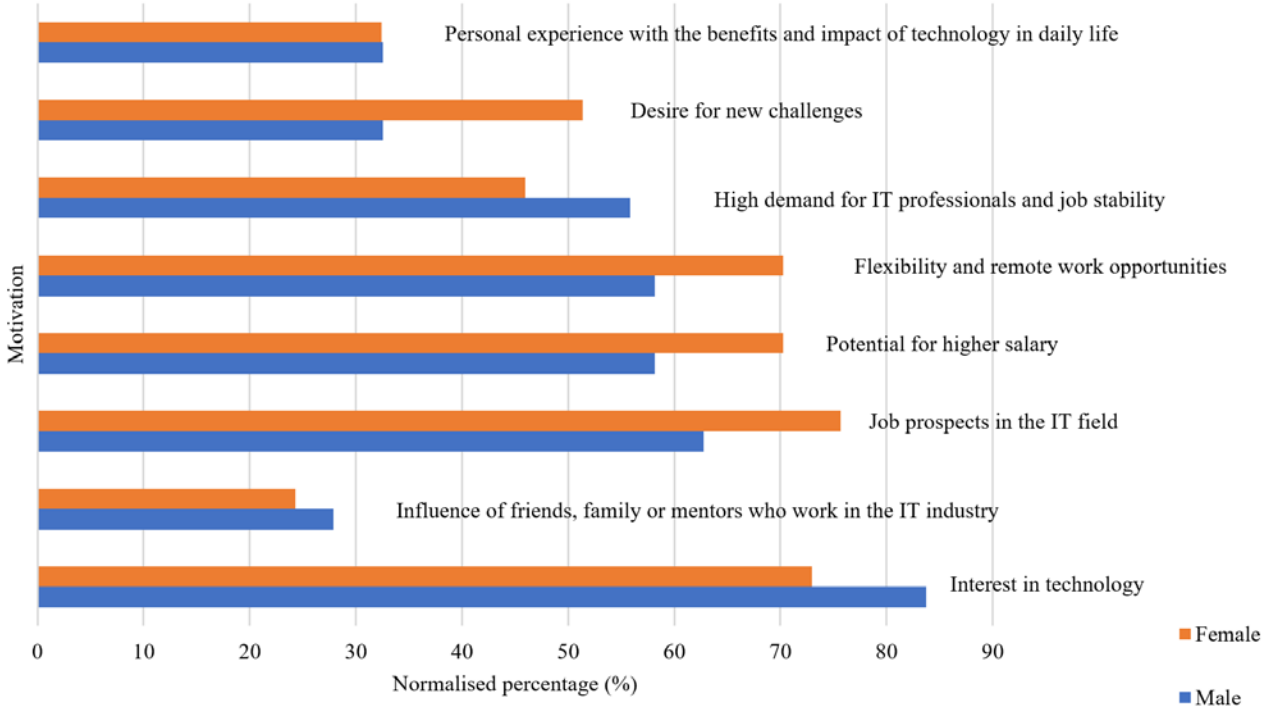

Figure 4: Motivations for transition by gender.

Engineering majors represented the largest group of individuals transitioning into IT. Figure 5 shows the percentage distribution of engineering majors by gender, highlighting distinguished trends. Engineering fields, such as renewable energy and biomedical show significant female representation, with females dominating these areas. Conversely, fields like mechatronics engineering, industrial engineering and mechanical engineering exhibit a higher percentage of male participants, reflecting male dominance in these fields. Interestingly, chemical engineering demonstrates a balanced distribution, making it a field where both genders are notably represented. These trends underscore the gender-specific preferences in engineering disciplines and highlight areas of diversity, as well as gender imbalances within the profession.

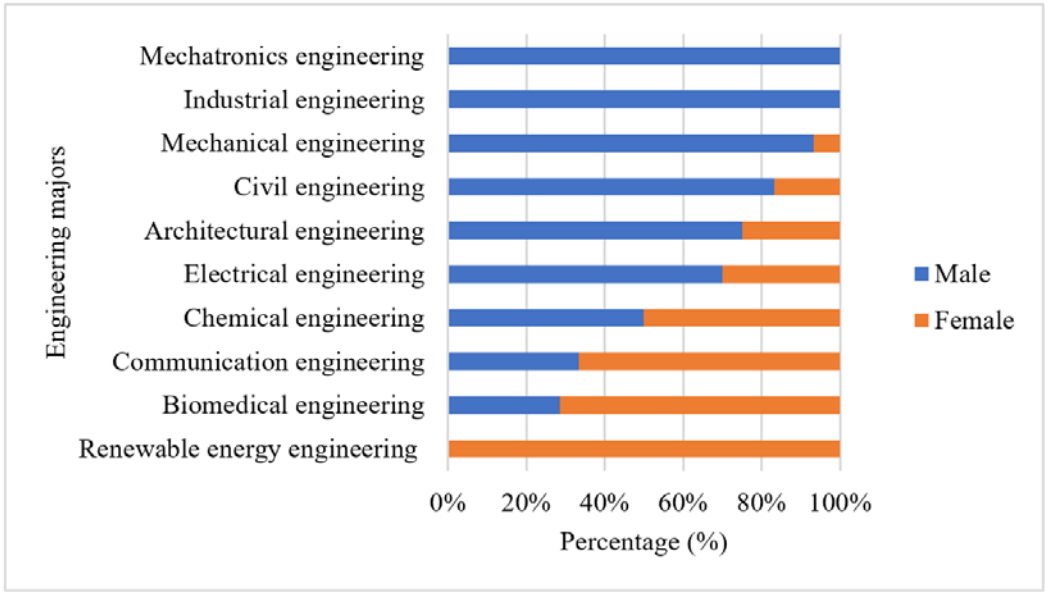

Figure 5: Percentage distribution of engineering majors by gender.

Finally, the analysis of engineering majors across age groups provides valuable insights into trends within the field. As shown in Figure 6, mechatronics engineering and renewable energy engineering stand out with the highest representation among the 20–25 age group, highlighting their appeal to younger individuals. This trend may be attributed to the fields' relevance in modern technological advancements and healthcare innovations. In contrast, disciplines, such as industrial engineering, chemical engineering and electrical engineering show a more balanced distribution across 20-25 and 26-30 age groups.

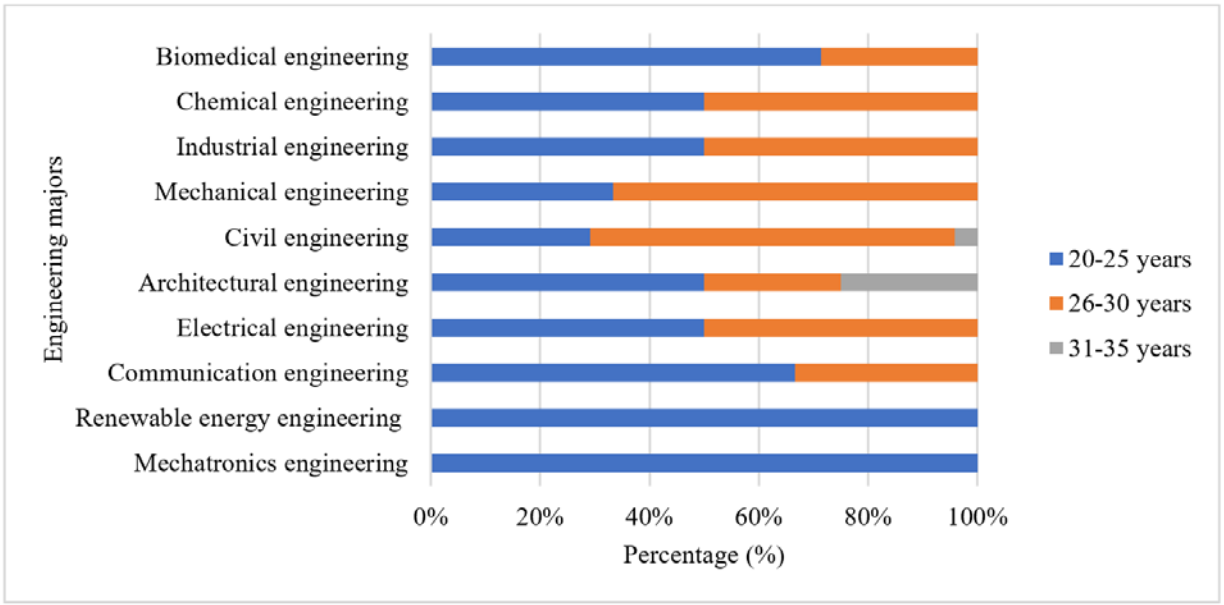

Figure 6: Percentage distribution of engineering majors across age groups.

CONCLUSIONS

The aim of this article was to explore the reasons for, and the mechanisms of, career shifting to IT. The analysis of the survey reveals valuable insights into the trends in this field broken by gender and age group. The findings suggest

that students make career shifts to the IT field for several reasons, mainly to remain employable, especially in today's dynamic job market. However, the mechanism of this shifting varies among students. Further, the results showed that career shifts to IT are most common during the early stages of study or career development mainly for the 20-25 and 26-30 age groups. Additionally, both genders achieved substantial success rates, with females showing a slightly higher rate of success in transitioning to IT careers.

As for motivation for career shifting, younger participants prioritise interest in technology and influence of others, while older individuals lean toward practical and stable career transitions. Interestingly, self-learning and bootcamps emerged as the most popular pathway for career shifting for both males (40%) and females (30%), highlighting its accessibility and flexibility. Notably, the majority of participants have shifted from different engineering fields. Therefore, future research might delve into the reasons why students mainly shift from different engineering fields to the IT field.

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