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# The Influence of Digital Competencies on Employability: The Mediating Role of Digital Empowerment and the Moderating Effect of Socioeconomic Status

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## Abstract

The rapid growth of the digital economy has reshaped employment trends, demanding new digital skill sets to thrive in the modern digital economy. The current study examines the impacts of three essential factors of the digital economy, i.e., Digital Marketing Literacy (DML), Access to Digital Platforms (ADP), and Digital Literacy Awareness (DLA), on the employability outcomes in Malaysia. Based on a multi-theoretical framework, the study investigates the mediating role of Digital Empowerment (DE) and the moderating effect of Socioeconomic Status (SES) on employability in Malaysia. A quantitative study with a cross-sectional design was employed to collect data from 400 participants either working in or seeking jobs across major states of Malaysia. The data was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The results reflected that all three factors, i.e., digital marketing literacy, digital platforms access, and digital literacy awareness, significantly increase employability. This effect occurs both directly and indirectly through digital empowerment. The findings also showed that the effectiveness of digital empowerment in enhancing employability is even greater among people with higher socioeconomic statuses, which reveals SES as a significant moderating factor. The results confirm the importance of digital skills and empowerment in developing employability, and the moderating impact of socioeconomic factors. This study contributes to theoretical knowledge on digital skills development, employment research, and digital inclusion policy. Besides, the study offers educators,

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policymakers, and organisations practical learning to improve employability through digital initiatives.

**Keywords**: Digital Marketing Literacy, Digital Empowerment, Socioeconomic Status, Employability, Digital Literacy, Access to Digital Platforms, Digital Economy

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## 1.0 Introduction

Digitalisation and employability have become critical drivers of workforce competitiveness in today's global digital economy. In the modern business landscape, digital technologies have a profound impact on society's economic development. Business firms and job markets increasingly rely on digital technologies for sustainable growth. Employees with high digital skills have more opportunities for job prospects, career growth, and sustainable economic contributions. This notion leads to increased significance for digitalisation, which is defined as the ability of an individual to navigate and use digital technologies that play an essential role in improving employability, especially considering the scenario of the digital economy. Therefore, with an increasing prevalence of digitalisation in the modern economy, digital literacy becomes vital for an individual to interact with and prosper within the digital economy (Sutisna et al., 2025; Yunxia et al., 2023). In the prospect of Malaysia, the developing digital economy is significantly reshaping how individuals seek, secure, and sustain employment. With the transition of businesses, the service sector, and education systems to digital platforms, new skillsets, particularly in digital marketing, have become imperative for economic participation in Malaysia (Hernandez, 2023; Hussain & Phulpoto, 2024).

Digital marketing literacy, encompassing competencies such as search engine optimisation (SEO), social media advertising, content marketing, analytics, and email marketing, is no longer confined to business promotion. Instead, it functions as a gateway skill for accessing emerging forms of employment, including freelancing, remote work, and digital entrepreneurship (Abbas et al., 2023; Basri et al., 2018). Furthermore, it is essential to consider that in today's increasingly digitised job market, employability is shaped less by traditional academic credentials and more by skills generation (Ayob et al., 2022; Gunduzalp, 2021). While technological advancements like artificial intelligence have broadened the scope of digital work, enabling automation, content generation, and innovation, the focus of this study is on how domain-specific literacies, such as digital marketing, would allow individuals to participate in the digital labour force meaningfully (Han et al., 2025; Izzah & Subbarao, 2025).

In 2024, the gig economy grew immensely, employing more than 3 million workers on numerous digital platforms (Mohd Shakil, 2024). A report published by the Ministry of Digital Malaysia (2024), the Information and Communication Technology (ICT) industry also attests to this digitisation, with 250,509 people employed in 2022. To support Malaysia's transformation into a high-income digital economy, the government under the MyDIGITAL program has set a vision to produce 500,000 jobs in the digital sector by 2025 (Malaysia Digital Economy Corporation [MDEC], 2024). Foreign investment solidifies this drive with Google's recent pledge, exceeding 48,000, which was created by the initiatives under the digital economy by the Malaysian Digital Economy Corporation (MDEC). Quite amazingly, in the first half of 2024, it has already created more than 25,000 jobs, beating the full-year figure of 2023 itself (Mahikala Niranga et al., 2022). All these points substantiate that digitalisation continues to generate jobs on an immense scale in numerous sectors in Malaysia (Hötte et al., 2022). Google also promises to invest USD 2 billion, set to create some 26,500 jobs by 2030 through the build-up of a data centre and cloud presence (Google, 2024).

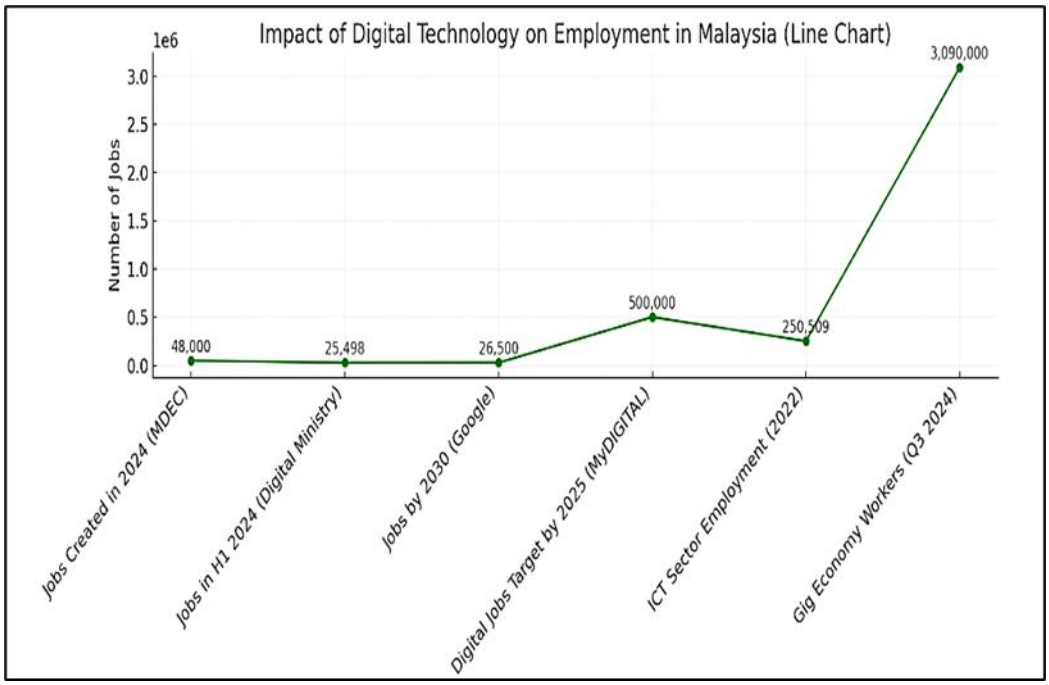


**Figure 1: Ministry of Digital Malaysia Report 2024**

**Source: Ministry of Digital Malaysia (2024)**

Central to this economic participation is access to digital platforms, including job-matching sites, online marketplaces, and digital advertising tools such as Shopee, Upwork, and Meta Ads. These platforms act as critical enablers of work, allowing users to promote their services, connect with clients, and build digital careers (Zhao et al., 2025). However, access alone is insufficient. A key predictor of successful engagement is digital literacy awareness, which recognises how essential digital skills are to achieving employment outcomes. Awareness shapes motivation, learning behaviour, and the readiness to pursue digitally mediated work (Ayob et al., 2022). Equally important is digital empowerment, a psychological construct defined by autonomy, control, and confidence with digital tools (Law & Kaur, 2025). The empowered are more inclined to experiment with new technologies, put digital skills into active practice, and consider freelance or entrepreneurial employment. A study by Gunduzalp (2021) concluded that empowerment significantly affects semi-urban individuals' employability outcomes, such that it meaningfully translates digital skillsets into jobs. However, the benefits of digital literacy and empowerment are not equally distributed. Socioeconomic status (SES) remains a key structural determinant of digital outcomes. Socioeconomic status (SES) has always been the strongest structural determinant of digital success (Chetty et al., 2018; Mosobalaje et al., 2024). A lack of internet access, digital infrastructures, and learning support typically constrains members with low SES backgrounds. Moreover, Law and Kaur (2025) further supplement that digital readiness gaps are excessively larger among minority students, with consequences for learning and employability futures. These inequalities highlight the need for due consideration for SES both as background and moderator that translates digital skills into labour market success.

Given this context, the present study frames its first objective by examining the direct influence of digital marketing literacy, digital literacy awareness, and digital platform access on employability within the Malaysian digital economy. The study further attempts to investigate the mediating role of digital empowerment in this relationship as its second objective. The study also strives to examine the moderating effect of socioeconomic status on the relationship between digital empowerment and employability outcomes as its third objective. This study adds to the body of knowledge on digital inclusion and workforce skills development by combining structural and psychological approaches. The study offers stakeholders and policymakers evidence-

based policy recommendations for creating more inclusive and focused digital literacy initiatives suited to Malaysia's digital economy.

The study is grounded in a multi-theoretical framework incorporating four important theories: Human Capital Theory, the Technology Acceptance Model (TAM), Empowerment Theory, and Digital Divide Theory. While enhancing productivity and market worth of employees, digital marketing literacy and awareness improve employability outcomes, as endorsed by human capital theory. Besides, the empowerment theory supports digital empowerment, a psychological construct that translates digital skills into practical job performance. The TAM advocates perceived usefulness and ease of access in shaping digital usage behaviour. The study further frames socioeconomic status as a moderating element, emphasising how structural disparities influence access, empowerment, and employment outcomes. Finally, it explains the digital divide theory. These theoretical grounds present a comprehensive understanding of how contextual elements and digital competencies affect employability in the Malaysian digital economy.

## 2.0 Literature Review

The literature review is structured around interrelated theoretical perspectives that collectively explain how digital skills transform into employability outcomes in Malaysia. The study incorporates human capital theory (Becker, 2009), presenting digital marketing literacy and digital awareness as important human capital investments that enhance individual productivity and employability. Besides, awareness and access to digital platforms are prerequisites for technology adoption, and this is endorsed by the Technology Acceptance Model (Davis, 1989). This model postulates that PEOU (Perceived Ease of Use) and PU (Perceived Usefulness) are the two important determinants of technology adoption, and access promotes engagement in digital work, while awareness affects perceived utility and employee motivation. Furthermore, Empowerment Theory by Zimmerman (1995) highlights that individuals with a sense of autonomy, confidence, and control are more likely to act effectively in the real environment. This study views digital empowerment as the psychological mechanism

influencing individuals to transform digital skills into digital marketing literacy, platform access, and literacy awareness into real employment opportunities. This result justifies the mediating role of digital empowerment in this study. In his Digital Divide Theory, Van Dijk (2005) addresses disparities in digital outcomes influenced by socioeconomic variables. Therefore, socioeconomic status (SES) is included as a moderating variable, which proposes that people from higher SES backgrounds can exploit digital empowerment more because of greater access to infrastructure, resources, and support.

## 2.1 Digital Marketing Literacy

Digital Marketing Literacy (DML) refers to an individual's ability to understand and effectively apply digital marketing strategies, such as search engine optimisation (SEO), content creation, social media advertising, and analytics (Moorthy & Sahid, 2021). In the modern digital economy, these skills are not confined to the formal marketing industry but are required by freelancers, gig workers, and digital entrepreneurs (Abbas et al., 2023). According to the Economic Planning Unit (2021), more than 80% of jobs require digital competencies, including marketing skills, and employers in Malaysia prioritise employees with these skills. A study by Basri et al. (2018) on final-year graduate students demonstrated that digital marketing literacy enables students to engage more effectively with academic and entrepreneurial tasks online, boosting productivity and engagement. Equally, Abbas et al. (2023) discovered that digital marketing skills enhanced teacher practices and self-efficacy in digital environments, indicating that marketing skills can be used in fields other than business promotion. Similarly, Moorthy and Sahid (2021) also demonstrated that greater digital marketing literacy of the Malaysian students was associated with better entrepreneurial behaviour, which is an essential antecedent to self-employment and involvement in the gig economy.

From a Human Capital Theory perspective, individuals with specialised digital skills like DML enhance their employability by increasing their productivity and market value (Ayob et al., 2022; Hussain & Phulpoto, 2024). Building these skills, especially in rapidly transforming digital economies such as Malaysia, can stimulate not just personal access to employment but also the overall competitiveness of the workforce. In this

regard, DML is also a skill that can be used to participate meaningfully on digital platforms like Shopee, Meta Ads, and Upwork- as a gateway skill, it enhances platforms' engagement, client acquisition, and performance visibility (Akbar & Tracogna, 2022; Jahan & Zhou, 2023). These findings support the idea that DML directly and substantially affects employability outcomes. Based on the findings of the previous studies, the present study proposes its first hypothesis as:

**H1:** Digital Marketing Literacy (DML) has a positive and significant effect on employability.

## 2.2 Access to Digital Platforms

Digital access is believed to be a critical facilitator of economic engagement in the digital economy. Such platforms, including Shopee, Upwork, Meta Ads, job-matching or e-learning platforms, and social commerce tools, are entry points where people sell services, learn new skills, and earn money (Akbar & Tracogna, 2022; Abbas et al., 2023). With digital transformation being a national agenda in countries like Malaysia, through the MyDIGITAL initiative, the capability to access and manoeuvre through such platforms is increasingly becoming a fundamental requirement of employability (Economic Planning Unit, 2021). The findings of previous studies substantiate that easy access and opportunities to use digital tools and platforms considerably increase the chances of getting hired or launching digital careers. Abbas et al. (2023) stressed that the regular use of platforms is associated with a higher level of digital productivity and task performance, mainly in educational and informal working conditions. Mosobalaje et al. (2024) also emphasised the role of digital access in empowering the economy inclusively, especially the disadvantaged groups. However, Hernandez (2023) and Surindra (2022) cautioned that just having access is not enough without the proper infrastructure and digital capacity; people in rural or semi-urban regions tend to use digital platforms less, perpetuating current economic inequalities.

The Technology Acceptance Model (TAM) provides further theoretical grounding for the role of platform access. The perceived usefulness and ease of platform

use are the driving factors for adopting technologies (Sharma & Sakergayen, 2024). According to Izzah and Subbarao (2025), these TAM factors significantly prompted students to use AI tools such as ChatGPT, showing that access, positive perceptions, and readiness determine use behaviour. These results confirm that the current study is concerned with access to digital platforms as a functional requirement for employability within digitally intermediated labour markets. Thus, in line with past research and TAM, individuals with better access to digital platforms are more likely to engage in platform-based work, online freelancing, and entrepreneurial activities, all enhancing their employability prospects. So the study formulates its hypothesis as:

**H2:** Access to Digital Platforms (ADP) has a positive and significant effect on employability.

### 2.3 Digital Literacy Awareness

Digital Literacy Awareness (DLA) refers to an individual's recognition of the importance and relevance of digital skills for employment, entrepreneurship, and personal advancement in the digital economy (Munyoka, 2022). This awareness shapes motivation, induces learning behaviour, and engagement with digital technologies. With the rapidly evolving digital landscape, especially in developing economies like Malaysia, DLA determines an individual's readiness to acquire and apply digital skills in work environments (Ayob et al., 2022; Hernandez, 2023). In the literature, studies reveal that digital literacy awareness influences not only employees' attitudes alone but also directly impacts behavioural intentions related to skill development and employment. For instance, Ayob et al. (2022) confirmed that digitally more aware individuals are more likely to engage in digital training and job-seeking via online platforms and are more competent on the job. Similarly, low levels of digital awareness often lead to the underutilisation of available technologies, especially in low-income or developing economies. Therefore, awareness is not just a cognitive antecedent but also a behavioural enabler of employability, particularly in the digital economies (Anekwe, 2022; Apata, 2024).

This concept is also supported by the Technology Acceptance Model (TAM), where awareness acts as a foundation, making beliefs about technology's usefulness and ease of use (Sharma & Sakergayen, 2024). Without prior awareness, users cannot evaluate or adopt digital tools effectively. For instance, Izzah and Subbarao (2025) noted that awareness was essential for students' engagement with generative AI tools, influencing both perceived value and adoption. Therefore, raising awareness of digital literacy is a critical first step in promoting employment-related use of technology. Furthermore, Gunduzalp (2021) reported in his study that employability outcomes increased in rural and semi-urban areas after digital awareness campaigns were raised, as people participated in digital training programs. Studies also substantiate that awareness enhances skills translation into action through job enhancement while contributing to society's income growth and living standards. Digitally aware individuals are better positioned to contribute to the social and economic development and better exploit job opportunities in the digitally driven market (Prayitno et al., 2022; Popowska, 2022). These findings indicate that digitally aware individuals are more likely to prepare for and participate in a digital job environment and have a greater chance of employability. Keeping in view the Malaysian digital market, this study hypothesises that:

**H3:** Digital Literacy Awareness (DLA) has a positive and significant effect on employability.

## 2.4 Digital Empowerment

Digital empowerment refers to an individual's sense of autonomy, confidence, and control in digital technologies for meaningful participation in work, education, and enterprise. Rooted in Empowerment Theory, this construct extends beyond mere skill acquisition to include psychological readiness and behavioural intent to act effectively in digital environments (Gunduzalp, 2021; Law & Kaur, 2025). In today's digital economy, empowerment represents the internal capacity that enables individuals to apply their digital competencies in real-world work settings, including freelancing, remote employment, or digital entrepreneurship. Although various studies accentuate the

benefits of digital literacy (Abbas et al., 2023; Prasastiningtyas et al., 2024), few have explored the bridging role of digital empowerment between digital literacy and employability outcomes (Amoah, 2021; Chaushi et al., 2024). In addition, Law and Kaur (2025) argue that digital empowerment has become central in job environments demanding self-regulation and independent work, which are integral to thriving in the digital market. These results revealed that digitally empowered students were seen as more active and took the initiative in online learning and job search activities. Similarly, Chetty et al. (2018) endorse that the best way to curb the digital divide in a society is through the empowerment of individuals. The individuals not only have access to technology but are also able to exploit the digital tools in a meaningful way.

Furthermore, empowerment theory suggests that individuals with better psychological control and digital self-efficacy are more motivated to pursue opportunities, innovate, and adapt to uncertain environments. This is particularly relevant to the Malaysian situation, where the digital economy is expanding; however, structural inequalities remain a barrier to equal participation for Malaysians. Gunduzalp (2021) emphasised that digital empowerment has produced a revolutionary impact on the employability outcomes of semi-urban young people, which allows them to use digital platforms to self-employ and advance their careers. The argument that empowerment supplements the technical skills by transforming them into economic involvement and earnings was further supported by Wulandari et al. (2022) and Sekaryanti et al. (2022).

The literature advocates that technical skills, such as digital literacy and access to platforms, are needed but must be coupled with the psychological preparedness of an individual, i.e., empowerment, to deliver employment results. Individuals may have access to tools and skills, but without the belief in their ability to use them confidently and effectively, these resources may remain underutilised (Law & Kaur, 2025; Gunduzalp, 2021). In this study, digital empowerment is positioned as a mediating variable that explains how Digital Marketing Literacy (DML), Digital Literacy Awareness (DLA), and Access to Digital Platforms (ADP) contribute to employability. The proposed mediating role is supported by empirical studies that show empowered individuals are more likely to act on their digital skills, especially in gig work, e-

commerce, and self-managed employment pathways. Based on the findings of previous studies, the current research proposes its hypotheses as follows:

**H4:** Digital Empowerment mediates the relationship between Digital Marketing Literacy (DML) and employability.

**H5:** Digital Empowerment mediates the relationship between Access to Digital Platforms (ADP) and employability.

**H6:** Digital Empowerment mediates the relationship between Digital Literacy Awareness (DLA) and employability.

### 2.5 Socioeconomic Status as a Moderator

Socioeconomic status (SES) reflects an individual's income level, education, and access to resources, e.g., technology, infrastructure, and institutional support. Amidst the digital transformation, Digital Divide Theory holds that individuals from low SES or families have limited access to modern or job-related technology and fewer chances of attaining digital competencies for employability (Hernandez, 2023; Mosobalaje et al., 2024). Such gaps hamper their ability to take full advantage of digital tools to find employment or run their businesses despite digital literacy and empowerment. In this study, SES, as a moderating factor, would outline the efficiency with which digital empowerment translates into employability. As their SES is higher, individuals are typically better positioned to capitalise on digital skills more effectively because of their enhanced digital experience, stable internet connection, and favourable learning environments.

However, digital divide theory proclaims that individuals with lower socioeconomic status are exposed to cumulative impediments, such as insufficient finances, poor digital infrastructure, and low confidence, to mention but a few, and these inhibit practical use of digital skills on the labour market (Gunduzalp, 2021; Muhammad et al., 2023). Furthermore, Law and Kaur (2025) in their study demonstrated this dynamic as part of the learning context, where lower SES students experienced significant obstacles to online learning due to limited internet access and limited digital preparation.

They indicate corresponding inequities within workforce participation, where access and empowerment do not necessarily equate to employability without structural remedies to inequities. SES, therefore, is not merely a background variable but a key contextual variable moderating digital outcomes, particularly within developing economies seeking to bridge digital divide gaps. Considering this, workforce development programs must move beyond one-size-fits-all digital training models and adopt targeted strategies considering SES-related barriers. Tailoring digital empowerment interventions to the socioeconomic realities of learners ensures that employability outcomes are equitable and sustainable (Faber et al., 2023; Ojong, 2025). In light of the discussion by the previous studies, the present research hypothesis is as follows:

**H7:** Socioeconomic Status (SES) moderates the relationship between digital empowerment (DE) and employability, such that the relationship is stronger for individuals with higher SES.

### 2.6 Employability in the Digital Economy

Employability refers to the capacity of an individual to achieve, maintain, and advance into gainful employment. Because of the digital economy, employability now extends beyond wage employment to freelance, work-from-home employment, gig work, and entrepreneurship. This creates not only a demand for technical credentials but also digital skills, flexibility, and empowerment (Ayob et al., 2022; Azameti et al., 2024; Joseph, 2020; Legg-Jack & Ndebele, 2023). The digital transition has revolutionised the skills horizon, with employers today appreciating domain-specific digital skills such as content creation, data analysis, digital marketing, and e-commerce management. As a result, digital marketing literacy is becoming an enabling force of employability, particularly among youth and young professionals transacting digitally intermediated labour markets (Abbas et al., 2023; Basri et al., 2018). Further, employability today also relies on soft skills such as self-management, resilience, and digital confidence, which are closely related to digital empowerment (Law & Kaur, 2025). National plans such as the MyDIGITAL Blueprint and the Malaysian Digital Economy Corporation (MDEC)

workforce transformation agenda have, thus, emphasised harmonising digital skills training with labour market needs (Economic Planning Unit, 2021; MDEC, 2023).

As argued, though, by Mosobalaje et al. (2024), digital skills acquisition must have awareness, access to digital platforms, and empowerment arrangements to ensure that acquired skills are translated into employment outcomes. Without these related factors, individuals, particularly those who are members of underserved populations, are not able to reap the benefits offered by the digital economy. Thus, employability in today's labour market is best understood as a dynamic outcome shaped by the interaction of cognitive, technical, and structural variables. This perspective calls for integrated digital literacy models that not only teach skills but also empower individuals and address systemic barriers to access and employment opportunities. In the prospect of previous studies, this study proposes and empirically validates a conceptual model examining the influence of digital marketing literacy, digital literacy awareness, and access to digital platforms upon employability in the context of Malaysia's digital economy. It examines digital empowerment as a mediator and socioeconomic status as a moderator to examine its influence on the employability outcomes in Malaysia. By integrating structural and psychological approaches, the research extends the body of knowledge on digital inclusion, skill formation, and transformation of the workforce. The study makes evidence-based policy recommendations for policymakers and stakeholders, considering how they could develop more targeted and inclusive digital literacy programs tailored to the digital economy of Malaysia.

## 3.0 Conceptual Framework and Hypotheses

Based on the literature and theoretical underpinnings, this study proposes the conceptual model shown in Figure 1. The model integrates three independent variables (Digital Marketing Literacy, Access to Digital Platforms, and Digital Literacy Awareness), one mediating variable (Digital Empowerment), one moderating variable (Socioeconomic Status), and one dependent variable (Employability).

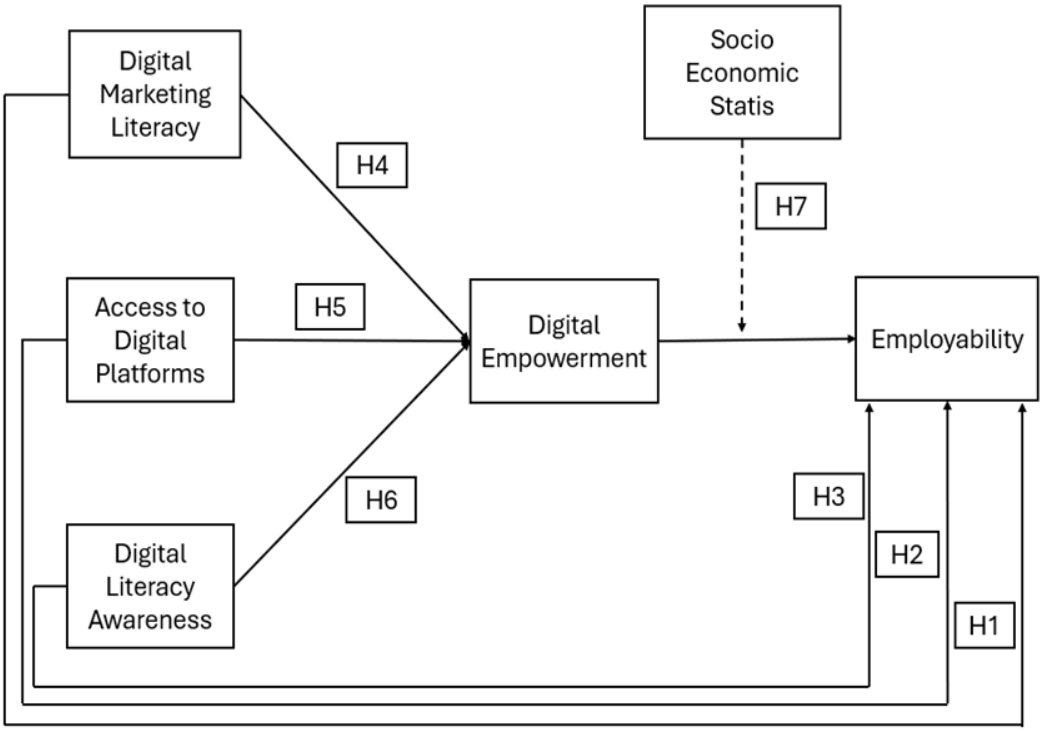


**Figure 2: Conceptual Framework**

## 4.0 Methodology

### 4.1 Research Design and Approach

This study employs a quantitative, cross-sectional design following a positivist paradigm, which endorses an objective measurement and statistical analysis. The purpose was to test the proposed relationships in the conceptual model using structural equation modelling (SEM). The data were analysed using SmartPLS 4.1, a suitable approach for predictive modelling with non-normal data and theory development. This approach is consistent with recent marketing studies that have applied PLS-SEM to examine complex relationships between marketing variables and outcomes (Abdullah et al., 2025).

### 4.2 Population and Sampling

The study targeted the individuals already working or seeking a job in the digital economy, such as job seekers, freelancers, entrepreneurs, and digital platform users. The purposive sampling technique was adopted to ensure the respondents have sufficient exposure or familiarity with digital applications like Meta Ads, Shopee, or Upwork. The data was collected from 400 respondents contacted through both self-administered printed questionnaires and an online Google survey form to increase accessibility and reach various states. During the data collection, the representation of the major states of Malaysia was ensured to increase the geographic diversity of the sample. These states included Selangor, Johor, Penang, Kuala Lumpur, Sabah, and Sarawak.

### 4.3 Instrumentation and Measures

**Table 1: Measurement Constructs and Item Sources**

| Construct | Items | Source |
|---|---|---|
| Digital Marketing Literacy (DML) | 5 | Moorthy and Sahid (2021) |
| Access to Digital Platforms (ADP) | 4 | Soomro et al. (2018) |
| Digital Literacy Awareness (DLA) | 4 | Chang and Kuo (2025) |
| Digital Empowerment (DE) | 5 | Tzafilkou et al. (2022) |
| Socioeconomic Status (SES) | 3 | Income, Education, and Residence |
| Employability | 6 | Tzafilkou et al. (2022) |

The study variables were operationalised using validated multi-item scales adapted from relevant previous studies. Digital Marketing Literacy (DML), Access to Digital Platforms (ADP), and Digital Literacy Awareness (DLA) were measured using 4 to 5 items adapted from recent digital skills and ICT access literature. Besides, Digital Empowerment (DE) and Employability were measured using a scale developed by Tzafilkou et al. (2022), which has been widely applied in technology adoption and employability contexts. Socioeconomic Status (SES) was measured using three

indicators, i.e., monthly income, level of education, and type of residence, combined into a composite index, a common practice in digital divide and inequality research (Chetty et al., 2018). All items were measured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

### 4.4 Pilot Testing

A pilot study involving 50 respondents was conducted to assess the reliability and clarity of the questionnaire items. All constructs demonstrated acceptable internal consistency, with Cronbach's alpha values exceeding 0.70. Minor wording refinements were made to improve the clarity and interpretability of certain items, particularly those measuring digital empowerment and access to digital platforms.

### 4.5 Data Analysis Procedure

The data were analysed using SmartPLS 4.1, which is suitable for theory development, complex model testing, and predictive modelling with non-normal data. This analytical approach is appropriate for evaluating both the measurement and structural models in partial least squares structural equation modelling (PLS-SEM) (Abdullah et al., 2025). The analysis was conducted in two major stages. Firstly, the reliability and validity of the measurement model were tested based on the indicator loading (> 0.70), Cronbach's Alpha (> 0.70), Composite Reliability (CR > 0.70), Average Variance Extracted (AVE > 0.50), and discriminant validity through Heterotrait-Monotrait (HTMT) ratio (< 0.90). The Variance Inflation Factor (VIF) was used to check for multicollinearity, and any value less than 3.3 was acceptable. This was then followed by testing the structural model aimed at testing the hypothesised relationships between the constructs. The strength and significance of the hypothesised relationships were determined by path coefficients (beta, 8), t-values, and p-values, and the threshold was set at $p < 0.05$. Other indicators of model evaluation were the $R^2$ value (variance explained in employability), $Q^2$ value (predictive relevance), $f^2$ (effect size), and SRMR (Standardised Root Mean Square Residual), where the values of 0.08 or less were good indicators of model fit.

The indirect effects of digital marketing literacy, digital literacy awareness, and access to digital platforms on employability through digital empowerment were examined using bootstrapping with 5,000 resamples. The moderation was checked by implementing an interaction term between digital empowerment and socioeconomic status (SES), and the significance was measured in terms of p-value and t-statistics. To ensure that no significant common method bias (CMB) occurred, a single-factor test by Harman was used. Moreover, the VIF values were all checked to ensure that there was no issue of multicollinearity. These analytical strategies combined offered a strong and wholesome analysis of the research model. The study ensured informed consent, respondent anonymity, and voluntary participation. The ethical approval was obtained from UTAR Kampar, Malaysia's ethical permission letter No U/SERC/56(A)-602/2025 dated 10th March 2025. The researcher ensured ethical concerns were abided by while collecting, analysing, or displaying the collected data.

## 5.0 Data Analysis and Results

This section presents the data analysis using SmartPLS 4.1, covering both the measurement and structural models.

### 5.1 Demographic Profile of Respondents

The demographic profile of respondents is as follows. The sample comprised 400 participants, with 55% identifying as male and 45% female. The majority of respondents were aged between 26 and 35 years (45%), followed by 18–25 years (35%) and 36–45 years (20%). In terms of employment status, half of the respondents (50%) were employed, while 30% were job seekers and 20% identified as freelancers. Regarding education level, 65% held a bachelor's degree, 20% were postgraduates, and 15% had a diploma. The monthly income distribution showed that 55% of participants earned between RM2,000 and RM4,000, 25% earned above RM4,000, and 20% earned less than RM2,000. This diversified respondent range accommodates a balanced representation of individuals who are part of or interested in joining the digital economy.

**Table 2: Demographic Profile**

| Demographic Variable | Categories | Frequency | Percentage |
|---|---|---|---|
| **Gender** | Male | 220 | 55% |
| | Female | 180 | 45% |
| **Age Group** | 18–25 | 140 | 35% |
| | 26–35 | 180 | 45% |
| | 36–45 | 80 | 20% |
| **Employment Status** | Employed | 200 | 50% |
| | Job Seeker | 120 | 30% |
| | Freelancer | 80 | 20% |
| **Education Level** | Diploma | 60 | 15% |
| | Bachelor's | 260 | 65% |
| | Postgraduate | 80 | 20% |
| **Monthly Income** | < RM2,000 | 80 | 20% |
| | RM2,000–4,000 | 220 | 55% |
| | > RM4,000 | 100 | 25% |
| **State (Malaysia)** | Selangor | 80 | 20% |
| | Johor | 70 | 17.5% |
| | Penang | 60 | 15% |
| | Kuala Lumpur | 60 | 15% |
| | Sabah | 50 | 12.5% |
| | Sarawak | 40 | 10% |
| | Others (e.g., Negeri Sembilan, Perak) | 40 | 10% |
| | **Total** | **400** | **100%** |

## 5.2 Measurement Model Assessment

The measurement model was evaluated using Cronbach's Alpha, Composite Reliability (CR), Average Variance Extracted (AVE), and the Heterotrait-Monotrait (HTMT) ratio to ensure the reliability and validity of the constructs. As shown above, all constructs exceeded the recommended thresholds for internal consistency, with Cronbach's Alpha values ranging from 0.78 to 0.90 and CR values between 0.85 and 0.93, indicating strong reliability. All the values of AVE of the constructed measures were greater than 0.50, which confirms convergent validity. Also, all the values of HTMT of all the pairs of constructed measures were less than the required maxima of 0.90, confirming discriminant validity. These values confirm that the constructed measures are reliable and valid enough to proceed with the structural model analysis. All values are within

required thresholds: CR > 0.70, AVE > 0.50, HTMT < 0.90, confirming reliability and validity.

**Table 3: Reliability and Validity**

| Construct | Cronbach's Alpha | Composite Reliability | AVE | HTMT Range |
|---|---|---|---|---|
| Digital Marketing Literacy | 0.85 | 0.89 | 0.63 | 0.65–0.78 |
| Access to Digital Platforms | 0.82 | 0.86 | 0.60 | 0.59–0.71 |
| Digital Literacy Awareness | 0.80 | 0.85 | 0.58 | 0.62–0.76 |
| Digital Empowerment | 0.88 | 0.91 | 0.66 | 0.69–0.84 |
| Socioeconomic status | 0.78 | 0.85 | 0.62 | 0.57-0.71 |
| Employability | 0.90 | 0.93 | 0.68 | 0.71–0.85 |

### 5.3 Structural Model Assessment

The structural model was assessed to evaluate the hypothesised relationships among the constructs. As presented in the table, all path coefficients (β) are statistically significant at $p < 0.001$, with t-values well above the minimum threshold of 1.96, indicating strong support for all proposed hypotheses. Digital Marketing Literacy (β = 0.31), Digital Literacy Awareness (β = 0.25), and Access to Digital Platforms (β = 0.22) each had a significant direct impact on employability. Similarly, all three predictors also had significant positive effects on Digital Empowerment: DML (β = 0.38), DLA (β = 0.27), and ADP (β = 0.24). Digital Empowerment itself significantly influenced employability (β = 0.40). The model explained 51% of the variance in Employability ($R^2 = 0.51$), indicating moderate predictive power. The $Q^2$ value of 0.33 confirmed the model's predictive relevance, and the SRMR value of 0.061 demonstrated an acceptable level of model fit.

**Table 4: Path Coefficients and Significance**

| Path | β | t-value | p-value | Result | Hypothesis |
|---|---|---|---|---|---|
| DML → Employability | 0.31 | 6.75 | <0.001 | Supported | H1 |
| ADP → Employability | 0.22 | 4.01 | <0.001 | Supported | H2 |
| DLA → Employability | 0.25 | 4.98 | <0.001 | Supported | H3 |
| DML → DE | 0.38 | 7.12 | <0.001 | Supported | H4 (mediation path) |
| ADP → DE | 0.24 | 4.44 | <0.001 | Supported | H5 (mediation path) |
| DLA → DE | 0.27 | 5.19 | <0.001 | Supported | H6 (mediation path) |
| DE → Employability | 0.40 | 8.52 | <0.001 | Supported | H4, H5, H6 (shared mediator path) |

## 5.4 Mediation Analysis

The indirect effects of the three independent variables on employability via digital empowerment were tested using bootstrapping:

**Table 5: Mediation Analysis**

| Mediation Path | Indirect β | t-value | p-value | Result |
|---|---|---|---|---|
| DML → DE → Employability | 0.15 | 4.92 | <0.001 | Supported |
| ADP → DE → Employability | 0.10 | 3.84 | <0.001 | Supported |
| DLA → DE → Employability | 0.11 | 4.17 | <0.001 | Supported |

Mediation analysis was conducted using the bootstrapping method with 5,000 resamples to test the indirect effects of Digital Marketing Literacy (DML), Digital Literacy Awareness (DLA), and Access to Digital Platforms (ADP) on Employability through Digital Empowerment (DE). As shown in Table 5, all three mediation paths are statistically significant at $p < 0.001$. Specifically, DML had an indirect effect on Employability through DE ($\beta = 0.15$, $t = 4.92$), followed by DLA ($\beta = 0.11$, $t = 4.17$) and ADP ($\beta = 0.10$, $t = 3.84$). These results confirm that digital empowerment mediates the relationship between each digital competency construct and employability. This finding

supports the theoretical proposition that enhancing individuals' sense of digital capability strengthens the link between digital skills and employment outcomes. All mediation paths are significant, confirming the mediating role of digital empowerment. These results support the mediating role of digital empowerment in the relationships between each independent variable and employability, which aligns with empowerment theory.

### 5.5 Moderation Analysis

The moderation analysis tested whether Socioeconomic Status (SES) influences the strength of the relationship between Digital Empowerment (DE) and Employability. The interaction effect (DE × SES → Employability) was statistically significant ($\beta = 0.19$, $t = 4.02$, $p < 0.001$), indicating that SES moderates this relationship.

**Table 6: Moderation Analysis: Interaction Effect of SES**

| Path | β | t-value | p-value | Result |
|---|---|---|---|---|
| DE × SES → Employability | 0.19 | 4.02 | <0.001 | Supported |

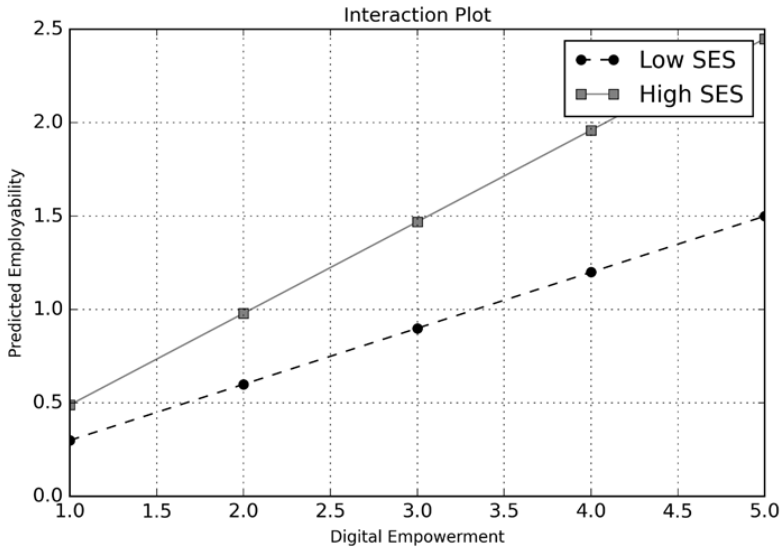


**Figure 3**: **Moderating Effect of Socioeconomic Status on the Relationship Between Digital Empowerment and Employability**

The plot illustrates that the relationship between digital empowerment and employability is stronger at higher levels of socioeconomic status, confirming a positive and significant interaction effect. Specifically, the positive effect of digital empowerment on employability is stronger among individuals with higher socioeconomic status. This finding supports the moderating role of SES and aligns with digital divide theory, which suggests that individuals from more privileged socioeconomic backgrounds are better positioned to translate digital competencies into employment opportunities.

## 6.0 Discussion

The findings of this study contributed to knowledge of digital literacy and employability in the digital economy. As supported by Human Capital Theory and the Technology Acceptance Model (TAM), digital marketing literacy (DML), access to digital platforms (ADP), and digital literacy awareness (DLA) are determinants with a strong and positive impact on employability in the digital age. Digital marketing literacy (H1) emerged as the strongest predictor of employability in the digital economy, which aligns with the previous findings emphasising the importance of digital and marketing knowledge towards employability outcomes (Hernandez, 2023; Hussain & Phulpoto, 2024). These results also validate the Human Capital Theory postulation that occupation-specific skill sets directly impact job market readiness. Individuals endowed with DML boast practical, relevant, and in-demand skills, consistent with current employment trends, especially in freelance, e-commerce, and content-based digital sectors. These findings are also supported by Akbar and Tracogna (2022) and Jahan and Zhou (2023).

Access to digital platforms (H2) and digital literacy awareness (H3) also demonstrated significant effects on employability, reinforcing the relevance of the TAM framework. Awareness of the importance of digital skills enhances an individual's cognitive engagement and behavioural intent to adopt technology, while access to digital tools enables practical participation in online work environments. These findings are in line with Izzah and Subbarao (2025), who found that perceived usefulness and ease of use significantly influence user behaviour toward emerging AI tools like ChatGPT. The present study builds on this by showing that awareness and access are adoption drivers

and enablers of labour market outcomes. Moreover, the mediating role of digital empowerment (H4, H5, H6) was supported across all three independent pathways. These results validate the Empowerment Theory by demonstrating that psychological enablers such as confidence, autonomy, and perceived control translate technical capacity into action. Individuals who feel digitally empowered are more likely to apply their skills in entrepreneurial ventures, gig work, or remote employment.

The finding that empowerment supplements the technical skills by transforming them into economic involvement and earnings was further supported by Wulandari et al. (2022) and Sekaryanti et al. (2022). The indirect effects (e.g., DML → DE → Employability: $\beta = 0.15$, $p < 0.001$) confirm that empowerment is not merely an outcome of skill acquisition but a mechanism that facilitates employability. Besides the effects of mediation, the analysis also indicated the direct influence of digital empowerment on employability. This finding supports the conclusions of Han et al. (2025), who highlighted the role of digital confidence and digital skills in enhancing job performance. Similarly, Abbas et al. (2023) also advocated the supportive role of digital empowerment with employability, particularly for digitally marginalised people. Izzah and Subbarao (2025) further concluded that higher levels of digital readiness make individuals adopt emerging technologies, which is an important factor for sustainable employment in today's digital economy. While this path was not tested as a standalone hypothesis, it constitutes a critical element of the mediation mechanism and supports the theoretical argument that digital empowerment enables greater employment readiness.

The moderating effect of Socioeconomic Status (H7) supports both Empowerment Theory and Digital Divide Theory. Empowerment Theory highlights that individuals with higher SES are better positioned to convert digital empowerment into employability. Similarly, Digital Divide Theory explains how SES influences unequal access to and benefits from digital resources. These findings confirm that the impact of digital empowerment on employability is not uniform but shaped by underlying socioeconomic conditions. These results are supported by Wang et al. (2023), who stated that digital participation and outcomes tend to be stratified along socioeconomic statuses. Besides, Yunxia et al. (2023) also revealed that people with greater access and resources are better positioned to gain digital economic development. Therefore, SES remains an

important element of the employment process. Furthermore, in line with the current study's findings, Sutisna et al. (2025) demonstrated that digital and economic literacy need to go hand in hand, particularly in micro and small industries, where SES is a decisive factor in the context of digital empowerment and its conversion into business and career sustainability.

This combined set of results reinforces the justification of a multi-theoretical model consisting of Human Capital Theory, TAM, Empowerment Theory, and Digital Divide Theory. Conceptually, the study contributes to existing literature by empirically testing the combined influence of digital competencies, psychological states, and socioeconomic context on employability. Practically, the research determines that policy interventions must consider building empowerment skills and access-inclusive policies besides emphasising skill-building. For instance, digital skills training programs must incorporate mentorship, building confidence levels, and simulation of online environments, especially for members of the low-SES group. Overall, this study demonstrates that employability in the digital economy is shaped by more than just technical skill—it depends on an individual's psychological readiness and access to enabling resources. These findings contribute to ongoing debates on digital inclusion and offer a perspective on how to foster equitable participation in digitally driven markets.

## 7.0 Conclusion

The present study revealed that all three independent variables, i.e., digital marketing literacy, digital literacy awareness, and access to digital platforms, have significant positive effects on employability. These results emphasise the importance of field-specific digital skills and digital tool access to modern-day digital workplaces. Notably, digital marketing literacy emerged as the most significant variable, while digital literacy awareness and digital platform access also took strong positions, with motivation and infrastructure as required preconditions to employment readiness. Digital empowerment also showed a strong mediation role, with an implication that the mental attitude to feel empowered, independent, and digitally competent is a determining factor in work.

The moderating role of SES also reveals that digital empowerment has a positive effect on individuals with higher socioeconomic status, revealing long-standing structural biases in digital work outcomes. This evidence highlights the need to pursue inclusive strategies beyond skills formation and to reduce barriers pertaining to pay, education, and digital access. In summary, this work contributes both theoretically and practically to digital employment. First, it demonstrates an integrated model comprising Human Capital Theory, the Technology Acceptance Model, Empowerment Theory, and Digital Divide Theory. From a practical orientation, the work proposes to governments, educators, and workforce agencies a multi-faceted response: widespread-based digital marketing instruction, universal promotional awareness of digital opportunities, and special interventions on behalf of underserved/disadvantaged populations. By addressing both psychological and structural factors, such initiatives can more effectively prepare individuals for success in a digitally driven economy while promoting broader goals of digital equity and economic inclusion.

## 8.0 Limitations and Future Research

While this research offers valuable and practical insights, specific limitations need to be acknowledged. Firstly, because it is cross-sectional, causal inferences between constructs were not possible. Future research could take a longitudinal design to explain, in detail, the dynamic impacts of digital literacy and empowerment on employability in the long term. Secondly, in this sample, non-probability purposive sampling applied may not permit generalizability to be extended outside digitally active individuals in Malaysia. Future research could add demographic breadth or try stratified random sampling to incorporate diverse and representative populations. Thirdly, all constructs were self-reported, which may induce common method bias even after trying to mitigate it (i.e., Harman's test, VIF checks). Future research could be advanced using multiple data sources, such as employer feedback or digital skill administration. Fourthly, digital marketing literacy was encompassed in this research, while in future studies, other domain-specific literacies (i.e., data literacy, AI literacy, fintech literacy) could be investigated and, in different contexts, produce different employability impacts. Lastly,

while socioeconomic status was functioning to moderate, future research could investigate other moderators such as career motivation, institutional support, or even gender, which may permit deeper learning on individual outcomes in digital spaces.

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