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Digital Literacy Skills and Digital Financial Inclusion toward Socio-Economic Development: A proposed framework

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Abstract

Digital literacy and financial inclusion are pivotal for fostering economic growth in digital transformation, particularly among the B40 group in Malaysia. Previous studies found that, despite the socio-economic challenges faced by this group, there is a gap in digital literacy and financial inclusion towards socio-economic development. Therefore, this paper aims to propose a framework of digital literacy skills and digital financial inclusion towards socio-economic development that covers independent variables, namely, technical, cognitive, ethical, and socio-emotional, and dependent variables, digital financial inclusion and socio-economic development. It is hoped to support the Sustainable Development Goals agenda by UNESCO 2030.

Keywords: Digital Literacy, Digital Financial Inclusion, Socio-economy, B40 groups

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1.0 Introduction

The 21st century has witnessed a transformative revolution driven by digital technology, reshaping nearly every aspect of life, including communication, education, commerce, and governance (Chellammal Surianarayanan, 2019). This digital revolution has fundamentally altered how individuals interact, acquire knowledge, conduct business, and manage governance, profoundly influencing societal structures, cultural dynamics, and economic paradigms on a global scale. By seamlessly integrating technology into all facets of business and social life, digital transformation has paved the way for innovative services, groundbreaking inventions, and unprecedented commercial opportunities. Digital literacy and financial inclusion are vital for economic growth and poverty reduction by enabling participation in the digital economy, reducing inequality, and fostering business activities, especially to contribute to and benefit from Malaysia's economic growth (Vanek et al., 2020; Tsouli, 2022). Which aims to examine digital literacy skills and digital financial inclusion in relation to the socio-economic development of B40 groups in Malaysia.

In this context, the ability to navigate and leverage digital tools has become indispensable for both personal and professional success. Digital literacy, which encompasses the skills, understanding, and attitudes required to access, evaluate, and utilize digital

information effectively, has emerged as a cornerstone of modern competency. Beyond mastering basic computer use, digital literacy now extends to more sophisticated skills, including those necessary for navigating smartphones, social media platforms, and online ecosystems. As technology continues to evolve, the demand for digital literacy has intensified, making it a prerequisite for meaningful participation in the contemporary world.

Кудлай (2019) emphasized that digital literacy entails the ability to search, retrieve, and process information while solving technological challenges, fostering critical thinking and adaptability. These skills are pivotal in helping individuals bridge the "digital divide," a term that highlights the disparities in access to digital technologies. This divide often correlates with socio-economic status, geographic location, and educational opportunities, creating inequities in how different populations benefit from digital advancements. Without concerted efforts to address these disparities, the digital divide risks exacerbating existing inequalities, reinforcing systemic barriers that prevent marginalized communities from fully participating in the digital age. This underscores the urgency of promoting digital inclusion, equipping individuals with the tools and knowledge they need to thrive in a world where technology is a driving force of social and economic change.

Digital financial inclusion aims to expand access to financial services and drive economic growth, especially for marginalized groups excluded from traditional banking systems. By integrating financial services with digital technology, it creates opportunities for low-income populations to manage finances through innovations like mobile banking, digital wallets, and online payment systems (Kaya, 2020). These advancements simplify financial transactions and promote economic participation, empowering individuals to save, transfer, and invest. Countries with advanced financial systems experience greater prosperity, while low-income nations struggle with challenges like limited digital infrastructure and financial literacy. Addressing these barriers is critical to ensure equitable access to financial services. Digital financial inclusion is closely tied to poverty reduction and income inequality alleviation (Tsouli, 2022), as it enables greater business activity and productivity. Furthermore, it provides marginalized groups with access to credit, savings, and insurance, supporting entrepreneurial efforts and helping individuals withstand economic shocks. This makes digital financial inclusion a cornerstone of inclusive and sustainable development.

In line with the global push toward sustainable development, the United Nations launched the 17 Sustainable Development Goals (SDGs) in 2015 to address pressing global issues by 2030. Malaysia, like many other countries, has integrated these goals into its national policies, with a particular focus on socio-economic development, inclusivity, and well-being (Michael & Salleh, 2021). Among the SDGs, goals such as SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), and SDG 11 (Sustainable Cities and Communities) hold particular relevance to Malaysia's B40 group. Poverty reduction, influenced by factors like inflation, unemployment, and economic growth, remains a significant challenge for the B40 group (Norasikin & Azhar Mohamad Azhar, 2024). Addressing the needs of this group is essential for achieving long-term sustainable development, economic growth, and social equity. Income inequality, as reflected in the B40 classification, highlights the struggles faced by Malaysia's lower-income households, where monthly incomes range from less than RM4,000 to RM4,850. This classification highlights the economic hardships impacting both individual households and national stability. Addressing these disparities through targeted digital financial inclusion strategies will reduce income inequality and support sustainable development goals.

2.0 Literature Review

Digital competence has emerged as a pivotal indicator of a nation's socio-economic development, highlighting the ability of individuals to navigate and effectively utilize digital technologies in various domains. This competence not only shapes individual opportunities but also contributes significantly to national economic resilience and global competitiveness. Recognizing this, the Malaysian government has undertaken strategic initiatives designed to align with the United Nations' Sustainable Development Goals (SDGs), with a strong focus on fostering a highly skilled and adaptable digital workforce. These initiatives are meticulously structured into short-term, medium-term, and long-term plans, ensuring that progress is both comprehensive and sustainable, addressing immediate challenges while laying the foundation for future advancements in the digital economy.

Globally, socio-economic classifications play a crucial role in understanding and addressing economic disparities across diverse populations. For example, the NITI Aayog report (2020) in India outlines the Below Poverty Line (BPL) criteria, a benchmark used to assess deprivation levels and allocate resources effectively. Similarly, Canada's Low-Income Cut-Off (LICO) framework emphasizes the intricate relationship between income levels and access to critical resources such as healthcare (Bolatova & Law, 2019). In the Malaysian context, the Bottom 40% (B40) group comprises households whose earnings fall within the lower 40% of the national income distribution, as defined by the Department of Statistics Malaysia (2020). Recent surveys indicate that B40 households, with an average income of RM5,249, face pronounced economic challenges. These challenges are further exacerbated by stark income disparities within the subcategories of B1 to B4 (Jabatan Perangkaan Malaysia, 2023), highlighting the need for targeted interventions.

Research by Vanek et al. (2020) and Tsouli (2022) underscores the transformative role of digital literacy and financial inclusion in fostering economic growth and mitigating poverty. Addressing these issues is integral to building equitable and sustainable societies. In Malaysia, the #SayaDigital initiative, launched in August 2020 by the Malaysian Digital Economy Corporation (MDEC) in collaboration with the Ministry of Communications and Multimedia, specifically aims to empower vulnerable groups, including B40 families, non-income populations, senior citizens, and youth. This program seeks to instill confidence in leveraging the digital economy to enhance quality of life, expand access to critical services, and create meaningful employment opportunities. By equipping individuals with essential digital skills, the initiative underscores the potential of digital transformation to drive social mobility and economic empowerment, making it a cornerstone of Malaysia's broader development agenda.

2.1 Initiatives of Sustainable Development Goals (SDGs)

In the context of the Sustainable Development Goals (SDGs), global cooperation has emerged as a pivotal element in addressing pressing socio-economic challenges, such as poverty and inequality. These interconnected goals, established by the United Nations in 2015, aim to create a more equitable world by recognizing that progress in one area significantly impacts others (United Nations, 2020). For instance, Goal 1 focuses on eradicating poverty, while Goal 8 promotes sustained, inclusive economic growth. The effective implementation of these goals necessitates collaborative efforts not only from governments but also from businesses and civil society to develop sustainable strategies.

Research indicates that Malaysia has demonstrated strong political will in aligning its national policies with the SDGs, particularly through initiatives like the Shared Prosperity Vision 2030. This framework aims to ensure that economic benefits are distributed equitably across all societal segments, including marginalized communities. Moreover, the National Employment Council's goal of generating 500,000 jobs by December 2021 exemplifies the government's commitment to fostering inclusive economic growth and decent work opportunities (Ministry of Human Resources Malaysia, 2020).

These strategic actions highlight the importance of global cooperation in tack-ling shared challenges. By engaging in partnerships with international organizations and other nations, Malaysia seeks to leverage resources, share best practices, and enhance the collective impact of its development initiatives. Ultimately, addressing these SDGs through a cooperative framework not only enhances Malaysia's developmental trajectory but also contributes to global efforts aimed at achieving sustainable development. This approach underscores the necessity of intergovernmental collaboration to foster inclusive growth and improve the socio-economic conditions of vulnerable groups, such as the B40 population.

2.2 Challenges among Underprivileged Society

The B40 group in Malaysia, representing the lowest 40% of income earners, faces significant socio-economic challenges amplified by limited digital literacy and access to technology. In Selangor, where approximately 500,000 B40 house-holds reside, digital disparities exacerbate urban poverty and restrict access to education, healthcare, and employment opportunities. Rural areas like Kuala Langat and Sabak Bernam are particularly disadvantaged, with poor digital infra-structure deepening the inequality gap even within this economically developed state (Y. Fang et al. , 2022).

Urban B40 communities in areas like Petaling Jaya and Shah Alam face rising living costs, making it difficult to prioritize digital adoption amid struggles with housing, food, and healthcare expenses (Kaur, 2021; Lee, 2023). Without digital skills and tools, these families miss opportunities for financial management, re-mote learning, and upskilling, further entrenching cycles of poverty and socio-economic stagnation. The lack of access to affordable internet services further limits their ability to connect with digital platforms for education or work. Additionally, digital exclusion affects their children's academic progress, widening the education gap between urban and rural communities.

Rural Malaysians, including Indigenous groups, are disproportionately affect-ed by limited technology access and low digital literacy. Computer usage in re-mote areas is 54%, compared to 74% in urban centers (Department of Statistics Malaysia, 2019). Many also lack essential media and information literacy, leaving them vulnerable to misinformation and unable to fully participate in the digital economy (Noordin, 2024). Bridging this divide is crucial to promoting equitable socio-economic development and empowerment for underprivileged communities.

2.3 Impact on the B40 Group in Digital Age

The digital age has profoundly impacted Malaysia's B40 households, who earn RM4,849 or less per month (Department of Statistics Malaysia, 2020; Economic Planning Unit, 2020). Financial constraints limit their ability to meet basic needs like housing, healthcare, and education, while also hindering access to essential digital tools such as the internet and computers (Kaur, 2021). These barriers pre-vent meaningful participation in the digital economy, leaving B40 families excluded from digital financial services that could provide access to banking, cred-it, and investment opportunities crucial for economic mobility.

The lack of digital literacy further exacerbates these challenges, as many B40 individuals cannot leverage online resources to improve their socio-economic conditions. Without adequate digital skills, they miss out on educational and employment opportunities that are increasingly dependent on technology, deepening their vulnerability and perpetuating poverty cycles (Lim, 2019). Limited engagement with digital platforms not only restricts access to modern financial services but also hampers their ability to adapt to the demands of the digital economy, reducing their capacity to improve living standards.

For B40 entrepreneurs, digital inclusion through social media and e-commerce offers pathways for empowerment, though ICT training remains insufficient (Omar et al., 2023). The digital transformation has brought both opportunities and challenges, amplifying inequalities faced by underprivileged communities (Liotta, 2023). While digitalization has the potential to drive socio-economic inclusion, its benefits remain unevenly distributed, emphasizing the urgent need to bridge the digital divide and ensure that the B40 group can fully participate in the opportunities of the digital age.

3.0 Methodology

This study will adopt a quantitative research approach utilizing structured survey questionnaires to collect primary data. According to the Department of Statistics Malaysia (DOSM, 2020), approximately 3.16 million households were classified under the B40 income group in 2022. Based on this population size, a minimum sample of 385 respondents will be deemed statistically sufficient, as calculated using the Raosoft sample size calculator. A structured questionnaire will be used, comprising six sections: demographics, ICT skills,

socio-economic development, digital literacy (technical, cognitive, ethical, socio-emotional), digital financial inclusion, and challenges with suggested improvements. A purposive sampling technique will be employed to ensure that only respondents falling within the B40 income classification are included in the study. The collected data will be analyzed using statistical software tools, including SPSS for descriptive and inferential statistics, and SmartPLS for Structural Equation Modeling (SEM), to derive meaningful insights and validate the proposed framework.

4.0 Proposed Framework Development

Based on a thorough review of prior studies and relevant literature, this study proposes a research framework. The conceptual framework aims to establish a clear and logical connection between variables and the identified problem, encompassing independent, and dependent variables, as outlined in the subsequent subsection.

3.1 Technical

Digital technologies have significantly supported income growth among the B40 community by facilitating activities such as online businesses and access to new markets and financial services. Studies have established a positive relationship between digital adoption and socio-economic improvements, showing that even a 1% increase in digital application levels can boost per capita income by 3.05% (Zhang & Wang, 2022). Furthermore, digital tools help reduce poverty rates, highlighting their role in improving quality of life. The use of digital platforms also allows individuals to overcome geographical and infrastructural barriers, expanding economic opportunities previously unavailable to underserved populations. This technological integration contributes to increased financial independence, which is vital for sustainable socio-economic development. Moreover, digital entrepreneurship fosters innovation and skill enhancement, ensuring the B40 group is better equipped to compete in the rapidly evolving digital economy.

3.2 Cognitive

The cognitive skills of children from low-income households, including those within the B40 group, are often significantly influenced by factors such as parental attitudes, access to educational resources, and the level of educational investment. While digital literacy among these groups has seen some development, there is still a considerable opportunity to enhance problem-solving abilities and foster digital learning to expand their cognitive capacities (Shafizan Mohamed et al., 2022). However, poverty remains a significant barrier, often contributing to cognitive deficits that require holistic, integrated approaches to address effectively (Li et al., 2020). Targeted interventions aimed at improving digital literacy can help bridge the cognitive gap, providing these individuals with the tools and skills needed to succeed in the future. Moreover, digital platforms and tools can support learning by offering interactive and engaging content that fosters critical thinking, creativity, and problem-solving. Enhancing cognitive skills not only provides academic benefits but also improves individuals' ability to contribute meaningfully to society and the economy, empowering them to break the cycle of poverty and achieve greater socio-economic mobility.

3.3 Ethical

Ethical competencies are crucial for navigating moral dilemmas and upholding personal integrity. These skills involve the ability to distinguish right from wrong, demonstrate ethical behavior in communication, and exercise self-control in various situations (Monteiro, 2021). Developing these abilities ensures that individuals can make principled decisions, even when faced with complex, ambiguous, or high-pressure circumstances. Promoting ethical behavior fosters trust, accountability, and transparency, which are essential for maintaining harmonious and productive societal interactions. Moreover, cultivating ethical awareness encourages individuals to act responsibly, especially in digital spaces, helping to reduce the spread of misinformation and unethical practices. A solid ethical foundation not only supports personal growth but also contributes to the creation of a community rooted in fairness, justice, and respect for others.

3.4 Socio-emotional

Socio-emotional skills, encompassing self-awareness, emotional regulation, and interpersonal abilities, are essential for navigating social complexities and fostering healthy, meaningful relationships. These skills are dynamic and can be cultivated over time through deliberate practice, supportive environments, and effective guidance (Portela-Pino et al., 2021; De Almeida, B.M., 2023). Strengthening socio-emotional competencies significantly enhances both personal and professional growth, equipping individuals to manage stress, resolve conflicts, and make responsible decisions effectively. Furthermore, improved socio-emotional skills enable individuals to navigate workplace challenges more efficiently, fostering collaboration, teamwork, and leadership capabilities. These competencies also play a crucial role in mental health, as they empower individuals to handle adversity with resilience and maintain emotional well-being, even in difficult circumstances.

3.5 Digital Financial Inclusion

Digital financial inclusion drives equitable access to financial services, fostering economic sustainability and reducing poverty, particularly in underserved communities. By leveraging digital technologies, it broadens economic participation, especially in emerging markets, empowering individuals and businesses alike (Ishfaq N., et al., 2024). A cornerstone of this inclusion is financial literacy, which equips individuals with the knowledge to manage resources effectively and maximize the benefits of digital financial services. Studies like Kusumawati et al. (2022) underscore the synergistic relationship between financial literacy and financial technology, stressing the

importance of practical programs to enhance digital financial literacy. The COVID-19 pandemic further highlighted fintech's transformative potential, particularly for marginalized groups such as women, rural farmers, and youth, by addressing financial access gaps and offering innovative solutions. Initiatives like the Digital India project exemplify the integration of ICTs to improve service delivery and governance, providing scalable solutions for inclusive growth (Tretyakov, O., 2022). However, persistent barriers, including the digital divide, particularly in poor urban areas, continue to hinder progress. These challenges necessitate targeted interventions, such as upgrading ICT infrastructure and implementing comprehensive digital literacy programs (Mulyaningsih et al., 2021). By addressing these issues, societies can harness the full potential of digital financial inclusion to drive socio-economic upliftment, reduce inequalities, and promote sustainable development through innovative digital solutions.

3.6 Socio-Economic Development
Socio-economic development focuses on improving living standards by addressing both social and economic factors. Education plays a central role, empowering individuals to improve their quality of life and contribute to societal growth (Chompa, 2022). This development involves advancements in healthcare, education, and employment, which strengthen and sustain societal structures. It also integrates economic principles like resource allocation and wealth distribution, shaping markets and communities. Finance is a key driver of socio-economic progress, enabling capital generation for production and fostering industrial and entrepreneurial growth (Spanò, 2019). However, its dual role in sup-porting economic development and speculative activities require balanced policies to maximize benefits while minimizing risks like inequality and financial instability. Additionally, science and technology contribute by driving innovation and transforming societal structures, creating opportunities for growth when aligned with societal needs (Wang & Verberne, 2021). Targeted policies, particularly for vulnerable groups like women farmers, can lead to meaningful societal change (Lukovych & Leshenok, 2021). Addressing these challenges through effective interventions is crucial for sustainable socio-economic development.
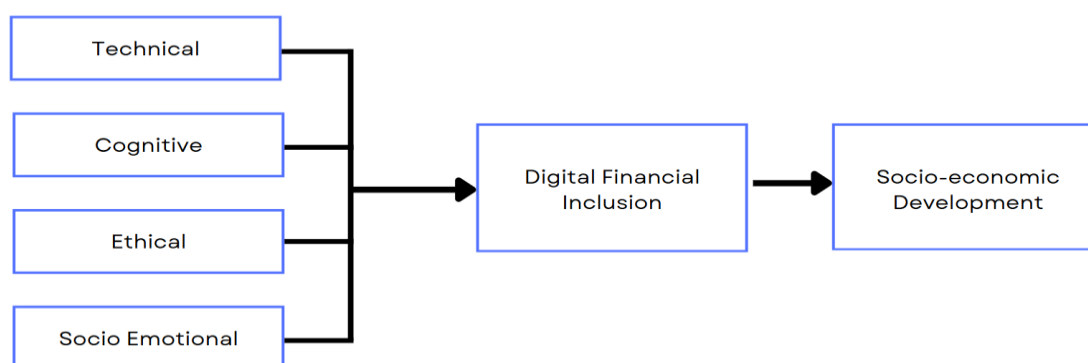

Fig. 1: Conceptual Framework

4.0 Conclusion

Selangor's digital transformation efforts, guided by the Smart Selangor Blueprint (2015), aim to enhance socio-economic development for the B40 group by focusing on digital literacy and financial inclusion. These efforts align with key Sustainable Development Goals (SDGs), including SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), and SDG 11 (Sustainable Cities and Communities). By equipping the B40 population with digital literacy skills spanning technical, cognitive, ethical, and socio-emotional domains, these initiatives have empowered individuals with access to online markets, improved incomes, and reduced financial barriers. Digital financial inclusion has further complemented these efforts by enabling marginalized communities to access essential banking and financial services, particularly during the challenges posed by the COVID-19 pandemic.

These combined initiatives have fostered economic resilience and expanded opportunities, significantly contributing to overall socio-economic development. However, the study is limited by its reliance on quantitative methods, which may not capture the deeper insights that qualitative approaches like interviews or observations could offer. Despite this, the research offers targeted recommendations for stakeholders such as educational institutions, community organizations, non-profits, and government agencies to enhance digital skills and design inclusive, responsive digital infrastructure strategies. Notably, this research fills a gap in Malaysian literature by integrating diverse digital literacy constructs within the context of digital financial inclusion.

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Paper Contribution to Related Field of Study

The authors affirmed that there is no conflict of interest in this article. Author1 carried out the field work, literature review and write up. Author2 and Author3 assisted with the design of framework and overlooked the article. Author4 verified the elements in the framework. This study will advance digital transformation and socio-economic development among Malaysia's B40 population by integrating digital

literacy constructs within the context of financial inclusion. It will propose an innovative framework to explore the link between digital competencies and financial participation, providing insights for scholars and practitioners. Also, offer recommendations for stakeholders and policy development, highlighting digital literacy as essential for inclusive financial systems and long-term empowerment.

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