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Digital Freelancing Trends Based on Crowdsourcing Technology Analysis Using Data Analytics and Visualization Approaches

Asmahani Mahdi[1], *Mohd Norhisham Razali[1], Rozita Hanapi[1], Khairul Imran Zulkefly[2], Angie Edward Daung[1]
[1]Business Technology Management Program, Faculty of Business and Management, Universiti Teknologi MARA, Kota Samarahan, Sarawak, Malaysia
[2]Malaysia Digital Economy Corporation (MDEC), Cyberjaya, Selangor Darul Ehsan, Malaysia
Email: *hishamrazali@uitm.edu.my
Corresponding Author: Dr Mohd Norhisham Razali

Abstract: The increasing living costs have put a strain on people's ability to afford necessities like housing, transportation, education, and healthcare, which affects the quality of life in many countries. These factors have led to a rapidly growing trend of digital freelancing activities that utilize crowdsourcing technology to provide people with opportunities to earn additional income. However, a comprehensive understanding of the digital crowdsourcing landscape is hampered by the lack of studies examining it through a geographical lens, freelancer performance metrics, skillsets, and platform information. Therefore, this study addresses this issue by scraping data from various crowdsourcing platforms to analyze digital freelancing trends, particularly in Malaysia. Using descriptive analytics and visualization techniques, this study has revealed insights into the geographical distribution of Malaysian freelancers, freelancer skillsets in demand, platform preferences among freelancers, and factors influencing freelancer performance. The findings highlight the growing economic significance of digital freelancing and the role of crowdsourcing platforms in shaping the industry. Key information gaps were identified, including limited insights into freelancer demographics and performance metrics. These findings can empower individuals, inform stakeholders, and stimulate further research, ultimately contributing to the development of a more robust, inclusive, and thriving digital freelancing ecosystem in Malaysia.

Keywords: *Digital Freelancing, Crowdsourcing Technology, Digital Economy*

1. Introduction

The rise of digital technology has transformed traditional employment structures, giving rise to the gig economy, where freelancers offer services through online platforms. Crowdsourcing platforms such as Upwork, Fiverr, and Freelancer.com have played a crucial role in shaping this ecosystem by connecting freelancers with global clients. These platforms provide flexibility, remote work opportunities, and diverse income streams. The motivation behind this study stems from the growing concerns surrounding job security, cost of living, and access to sustainable income sources. Many Malaysians turn to freelancing as a means of economic empowerment, yet there is limited research on how crowdsourcing platforms influence freelancer success. Malaysia presents a unique case in digital freelancing trends. As a developing country with high internet penetration and government initiatives promoting the gig economy (e.g., Malaysia Digital Economy Blueprint), the nation has seen a surge in freelance participation (Pokhrel, 2024; Syarfina Abu Bakar & Hafizah Hassan, 2024).

Malaysia's gig economy is on the rise, with more school leavers opting for flexible work like ride-hailing (Rahim et al., 2021) (Rahim et al., 2021). This shift was partly due to COVID-19, especially among tech-savvy youth. The market size ballooned to RM1.33 billion in Q3 2023, an 80% increase from 2022 (Malay Mail, 2023). Gig workers now comprise a substantial part of the workforce, estimated at 18.4% (Harun et al., 2020). Crowdsourcing platforms like Freelancer.com offer more avenues for gig work and the Malaysian Digital Economy Corporation (MDEC) via the Global Online Workforce (GLOW) program, helped the digital freelancers to get freelancing jobs through crowdsourcing platforms. However, compared to developed economies, Malaysia faces challenges such as wage disparity, inconsistent job security, and skill gaps in emerging fields like data science and artificial intelligence. Despite these factors, comprehensive studies on digital freelancing trends within Malaysia remain scarce.

However, a lack of studies analyzing this trend through a geographical lens, including freelancer performance metrics, skillsets, and platform information, exists due to the absence of comprehensive data on Malaysian

freelancers (Kim et al., 2023). As stated by Harun et al. (2020) a study needs to be conducted to understand the prevalence of freelancers among different demographic backgrounds for joining gig employment and improved methods for estimating and identifying gig workers. In addition, there is limited understanding and insight into the trends of freelancing among Malaysian freelancers, such as the most in-demand skills, the geographical distribution of freelancers, average pricing, and the overall satisfaction level of clients. Consequently, this may disrupt the effort of the Government to establish a comprehensive policy framework and facilitate the upskilling of gig workers (Rahim et al., 2021).

Therefore, this study aims to analyze digital freelancing trends based on crowdsourcing platform technology in Malaysia. Specifically, the objective of this study is to scrape data related to Malaysian freelancer profiles from various crowdsourcing platforms. By scraping the data, another objective of this study is to provide descriptive analytics using data analytics and a visualization approach that provides visual representations of the data to analyze patterns, trends and relationships among various variables. Based on the analysis and findings of this study, this study has the potential to significantly contribute to the development of the digital freelancing ecosystem in Malaysia. It can empower individuals, inform stakeholders, and stimulate further research, ultimately leading to a more robust, inclusive, and thriving digital freelancing landscape that benefits all involved.

2. Literature Review

This section reviews the key factors and challenges associated with digital freelancing on crowdsourcing platforms.

Education and Skills

The study by Blaising & Dabbish (2022) highlight several key factors that influence new freelancers' ability to navigate the challenges of online freelancing, particularly the lack of formal resources for guidance. To overcome these challenges, new freelancers engage in self-directed socialization practices, including managing professional identity ambiguity, building credibility, and addressing self-doubt, while also handling platform work self-management. However, the study does not address factors that could differentiate the experiences of tenured freelancers, such as their accumulated knowledge, skills, and strategies for overcoming similar challenges. Additionally, the geolocation of the participants was not considered, which may have influenced the outcomes, as the challenges faced by freelancers can vary significantly based on their location due to factors like market demand, cultural norms, or local economic conditions. These missing factors suggest the need for further research to better understand the nuances of freelancing across experience levels and geographic contexts (Musvosve et al., 2023). Similar issues were also discussed in the study by Prakasha et al.,(2023), it investigates the effect of social influence on the saving behavior of freelancing undergraduate students in India, with financial literacy and self-control acting as mediators. The findings highlight the importance of educating students on digital financial management, as many students, particularly those in low-income settings, lack the necessary skills for making informed financial decisions. The study recommends that financial education be made mandatory in higher educational institutions to improve students' financial decision-making and saving habits.

The study identifies four IT-specific challenges for freelancers and aggregates them into a comprehensive model, contributing to a deeper understanding of how IT work is performed in digital labor markets. Key challenges highlighted include the need for specialized skills, high competition, job security concerns, and issues related to platform dynamics. The study's findings extend existing literature on online freelancing by adding IT-specific aspects, which are crucial for platform owners and IT freelancers. However, the study acknowledges limitations, such as the use of IT-related search terms, which may have included irrelevant posts, and the focus on a single platform, Upwork, and the Reddit forum, which may not fully capture the broader spectrum of challenges across different platforms. Future research is suggested to explore additional platforms and other sources of freelancer feedback, such as social media or surveys, to further validate the findings and capture any overlooked challenges. Fiers (2024) also emphasized the significant role of digital skills in enhancing freelancers' resilience within the volatile gig economy. Key factors influencing freelancers' ability to navigate uncertainties include their proficiency in optimizing platform tools, which allows for more informed decision-making, and their self-reliance, enabled by advanced digital skills that reduce dependency on platform

support. Additionally, digital skills empower freelancers to creatively adapt to platform limitations and malfunctions, thus increasing their agency. The study also highlights digital inequality, noting that freelancers with better digital literacy are better positioned to mitigate risks, reduce unpaid labor, and maintain a competitive edge. These factors: digital skills, self-reliance and adaptability are essential for freelancers' ongoing participation and success in the dynamic online freelancing environment.

Crowdsourcing Platform Flexibility

The study compares twelve emerging online freelance platforms, focusing on the shortcomings of these platforms and innovative solutions to enhance their functionality. The research investigates several critical aspects, including flexibility, the nature of business, business management tools, payment models, and platform morality. The study identifies significant issues such as platforms' overinvolvement in user businesses, high commission fees, and inefficient management practices. To address these challenges, the study proposes a decentralized administrative model, which could be implemented using cloud-integrated technologies and an AI-powered judiciary system. These suggestions aim to enhance transparency, reduce overhead costs, and improve overall platform efficiency, thus creating a more sustainable environment for both freelancers and clients. The findings highlight the need for technological innovation to resolve the current operational inefficiencies within these platforms. The factors of the platform's flexibility were also discussed by that explores the subjective well-being of online freelancers within Sri Lanka's digital gig economy. Online freelancing, as part of the digital gig economy, offers flexibility and autonomy through platforms like Fiverr, Upwork, and Freelancer. The research investigates the key factors influencing the well-being of freelancers in Sri Lanka, including work conditions, digital transformation, performance pressures, platform dynamics, and human capital. The findings reveal that Fiverr is the most popular freelancing platform in Sri Lanka, with web/software development being the most common area of freelancing, followed by graphic design and creative arts.

Full-time freelancers often work both during the day and at night. The study emphasizes the need for further research in this area, particularly extending beyond web-based freelancing to explore other gig economy components and employing a variety of data collection methods to gain a more comprehensive understanding of freelancers' subjective well-being. The research by were also delves into the challenges of managing work-life balance among online freelancers, revealing that while platforms provide flexibility, they also impose demands on availability, autonomy, and the ability to detach from work. These factors contribute to the stress and difficulty in maintaining a healthy work-life balance, despite the perceived benefits of freelancing. In another study, the challenges surrounding macrotask freelancing on platforms like Upwork are examined. Freelancers in this context face issues related to collaboration, invisible work, and the associated costs of engagement. The study highlights that freelancers view macrotasks as collaborative endeavors, which require high-touch interaction and proper matching between freelancers and tasks. Although platforms offer programmatic solutions to assist in matching and reducing transaction costs, freelancers also adopt strategies such as repeat hiring to minimize costs and foster better collaboration. These findings emphasize the critical role of efficient task matching, the need for a balance between autonomy and platform demands, and the importance of long-term relationships to reduce transactional inefficiencies in the freelancing ecosystem.

The studies on online freelance platforms have identified key factors influencing freelancers' self-presentation, identity formation, and adoption of these platforms. Munoz et al., (2022) examined how platform features, policies, and algorithms shape freelancers' self-presentation, highlighting the issue of deconstructed identity. The study found that freelancers' identities are reshaped, diminished, and controlled by platform structures, client feedback, and algorithm-driven ratings, leading to a standardized portrayal of skills that limits individual expression. Additionally, power imbalances in online labor platforms force freelancers to navigate constraints while resisting external control over their professional identity. Meanwhile, Krishnamoorthy et al., (2016) analyzed the adoption of online freelancing in Malaysia using the Technology Acceptance Model (TAM), focusing on perceived usefulness, ease of use, and security. Their findings emphasized that perceived usefulness is a key determinant of freelancers' intention to engage with these platforms, with security concerns and ease of use also playing significant roles. These studies underscore the importance of platform governance, algorithmic transparency, and user-centric design in shaping freelancers' experiences and decisions. The study by Alauddin et al., (2025) identify 12 key themes that illustrate the complex influence of the platforms, including task allocation, market entry, transaction facilitation, employment status, and worker representation.

While digital platforms provide low barriers to entry, flexible work arrangements, and task allocation, gig workers face significant challenges such as a lack of social protections, algorithmic control, competition, and downward wage pressures. The study emphasizes the need for stronger collective organizing and advocacy for gig workers, as well as re-evaluating platform practices around data collection, algorithmic management, and worker classification. It also highlights the need for policymakers to implement stronger labor regulations and social safety nets for gig workers. The review calls for a collaborative effort among researchers, platforms, and policymakers to address the imbalances and inequities in the gig economy, ensuring that the benefits of digital platforms are more equitably distributed and that gig workers' rights and well-being are prioritized as the economy continues to expand.

Research on digital freelancers and digital labor policies has identified key factors influencing their experiences, particularly in terms of welfare, bias, impression management, labor market tracking, and workforce measurement. Rahim et al., (2021) highlighted the importance of addressing gig workers' welfare and social safety concerns, particularly during the COVID-19 pandemic. Olorundare et al., (2022) revealed that despite the popularity of gig work, many workers face challenges such as poor internet access and electricity, as well as competition with international gig workers. It highlighted the flexibility and income potential of gig work, although earnings remain inconsistent, with many workers earning below 20,000 Naira monthly. The study recommends improvements in infrastructure, the establishment of a regulatory body, and efforts to rebrand Nigeria's international image to encourage participation in the gig economy.

Gender

Hannák et al. (2017) examined racial and gender biases in online freelancing, finding that Black freelancers face consistent bias across platforms, affecting evaluations and search rankings, which calls for proactive bias mitigation strategies. Impression management is another critical factor, as explored by those who identified audience understanding and gender role constraints as key elements influencing freelancers' ability to secure work. The study designed online feedback exchange systems to enhance freelancers' comprehension of audience expectations and examined how gender roles affect pricing behavior in online labor markets. Similarly, investigates how digital labor platforms, specifically in the context of online freelancing, contribute to the platformization of inequality by reinforcing identity-based stereotypes, biases, and expectations related to gender, race, ethnicity, and occupation. Drawing on data from 108 US-based online freelancers over three years, the study highlights how female freelance work is often undervalued, gendered occupational expectations persist, and racial stereotypes and biases shape freelancers' experiences. The research suggests that, rather than reducing bias, these platforms may embed existing biases into the labor market, thereby exacerbating inequality. Key findings emphasize the role of intersectionality, revealing how multiple marginalized identities mediate workers' experiences and outcomes. The study calls for greater attention to these issues in both future research and platform design, underscoring the need for digital labor platforms to address and reduce the reinforcement of social identity-based marginalization in freelance work. Meanwhile, the lack of comprehensive labor market tracking was addressed by expanding the Online Labour Index (OLI) to monitor temporal trends, gender participation, and regional labor shifts, though challenges remain in ensuring accurate data representation. Harun et al., (2020) contributed to the understanding of gig work in Malaysia by utilizing the Labour Force Survey (LFS) to profile gig workers, revealing the challenge of accurately capturing this workforce due to its diverse occupational spread. Collectively, these studies emphasize the significance of addressing social biases, refining labor tracking mechanisms, and developing better policies to support freelancers in an evolving digital economy.

3. Methodology

This section will elaborate on the methodology undertaken to carry out this research, which includes data sampling and gathering, data preprocessing, data visualization and descriptive Analytics.

Data Sampling and Gathering

Data acquisition for this research involves scraping data from the websites of various freelancing platforms. To examine digital freelancing trends, data was scraped from leading crowdsourcing platforms: Upwork, Freelancer.com, and Fiverr. These platforms were chosen due to their popularity, diverse freelancer base, and availability of public data on freelancer profiles. Data collection process involved extracting freelancer locations, skills, platform activity, job completion rates and client reviews. These attributes are shown in Table 1.

Table 1: Attributes

Attribute	Data Type	Description
District	String	The district or location where the freelancer is based.
State	String	The state or region where the freelancer is located.
Price per hour	Float	The rate charged by the freelancer for their services, typically measured in currency per hour.
Verification	Boolean	Indicates whether the freelancer's profile has been verified by the platform.
Verification_Cat	String	Category of verification, if applicable.
Skills	String	Specific skills or expertise offered by the freelancer.
Skills Category	String	The broader category to which the freelancer's skills belong.
Star Rating	Float	The average star rating received by the freelancer from clients or customers.
Star Rating Cat	String	Category based on the star rating.
Recommendation	Boolean	Indicates whether the freelancer would be recommended by clients or customers.
Total Review	Integer	The total number of reviews received by the freelancer.
Platform	String	The freelancing platform where the freelancer's profile is hosted.

Data Preprocessing

The data is cleaned and pre-processed the collected data to handle missing values, outliers, and inconsistencies. This involved data cleaning, transformation, normalization and encoding.

Data Visualization

A data visualization tool was employed to create interactive and insightful visualizations. The data was represented by using suitable charts, graphs and maps to effectively communicate the findings.

Description Analytics

Descriptive analytics was performed on the visualized, aggregated and summarized data and statistical measures were employed to identify trends, patterns and correlations.

Interpretation and Reporting

Interpreted the findings from the descriptive analytics process and reported key insights, trends, and patterns observed in the data. Provided clear explanations and interpretations supported by Tableau visualizations and statistical analysis.

4. Results and Discussion

Demographic and Platform Analysis

Figure 1: Geographical Distribution of Registered Freelancers Crowdsourcing Platforms in Malaysia

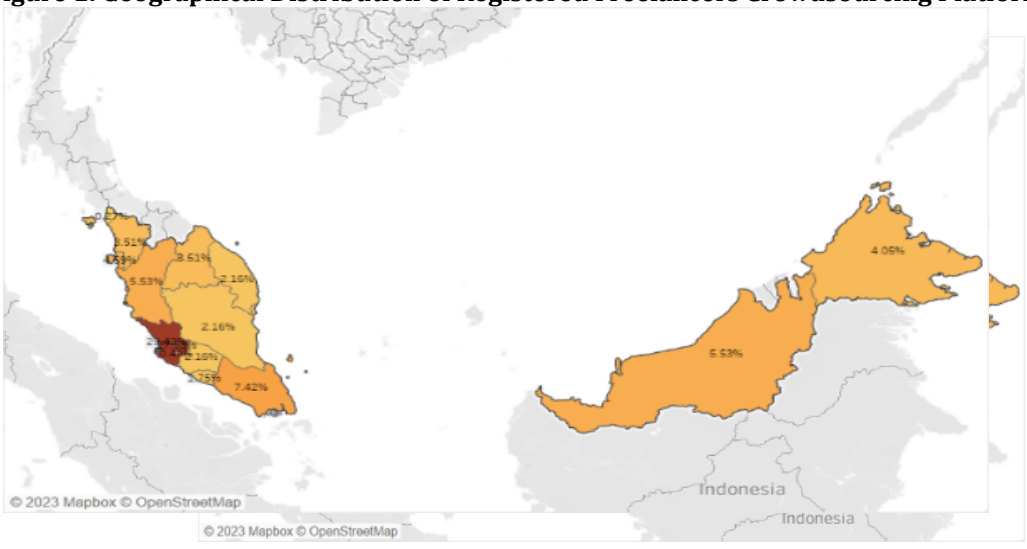
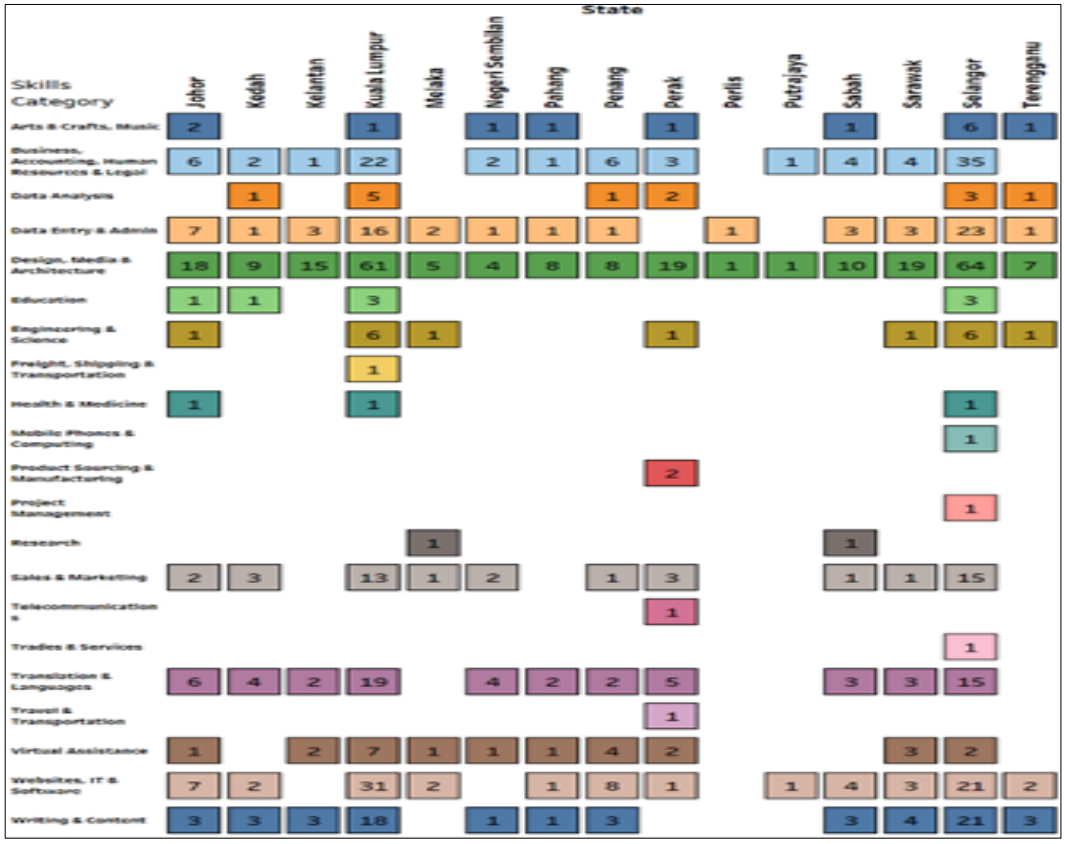
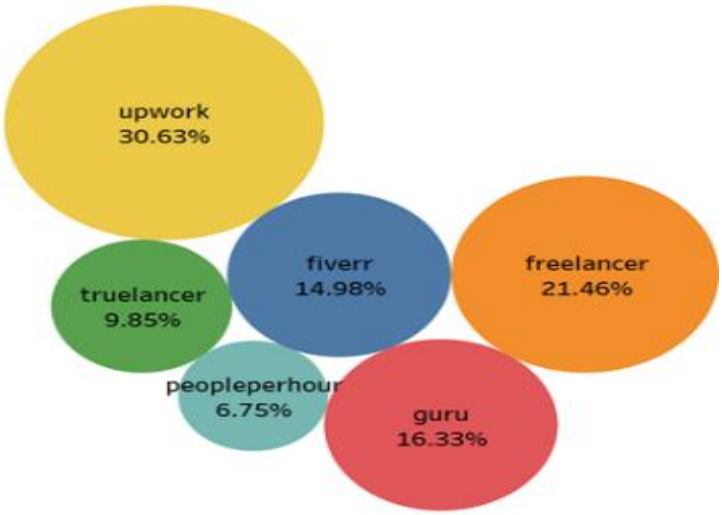


Figure 2: Total Freelancers based on skill categories for all states



The map illustrated in Figure 1 shows the data on freelancers in Malaysia, registered on platforms like Upwork, Fiverr, Freelancer, Guru, PeoplePerHour, and Truelancer. It showed that most freelancers are in Kuala Lumpur and Selangor, making up 56.95% altogether. This means a lot of people in these areas are using these online work platforms. Other states like Johor, Penang, Perak, Sarawak, and Sabah also have quite a number of freelancers. However, places like Perlis (0.27%) and Putrajaya (0.40%) have fewer freelancers, possibly because there are fewer people there. Overall, this data tells us that digital freelancing is popular across Malaysia, especially in urban areas. Based on the waffle chart shown in Figure 2, skills like business, accounting, human resources and legal, data entry and admin, design, media and architecture, translation and languages, websites, IT and software, and writing and content are most available in all states. However, skills like education, Freight, Shipping and Transportation, Health and Medicine, Mobile Phones and Computing, Project Management, Research, Telecommunications, Trades and Services, and Travel and Transportation are mostly not available in many states. Selangor emerges as the state with the most diverse and extensive skill set among freelancers, followed by Kuala Lumpur and Johor. However, if we consider the states where certain skill categories have lower representation, Perlis, Putrajaya, and Kelantan appear to have fewer freelancers across a wide range of skill categories compared to other states. Overall, different states showcase unique strengths in specific skill categories, reflecting the diversity of expertise within the freelancing community across Malaysia.

Figure 3: Percentage of freelancers registered on the platform in Malaysia



In Malaysia, Upwork maintains the highest registration percentage at 30.63%, indicating a significant presence and popularity among freelancers in the country, as can be seen in Figure 3. Freelancer.com follows closely behind with a registration percentage of 21.46%, suggesting a substantial user base as well. Fiverr and Guru.com hold registration percentages of 14.98% and 16.33%, respectively, positioning them as prominent platforms within the Malaysian freelancing landscape. PeoplePerHour and Truelancer, with registration percentages of 6.75% and 9.85%, respectively, represent smaller but still noteworthy segments of the market.

Skills and Categories Analysis

Figure 4: Percentages of freelancers for each skill category

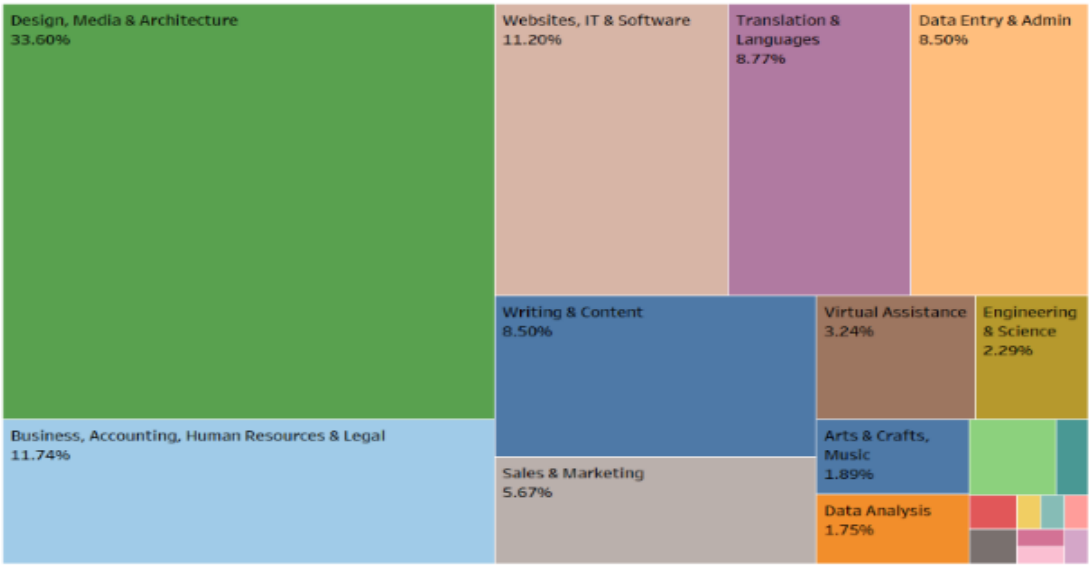
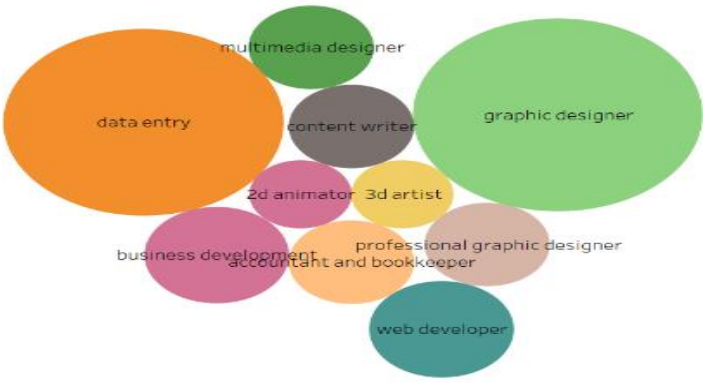


Figure 5: Word cloud of skills among freelancers



The data shown in the treemap in Figure 4 reveals a diverse landscape of freelancing skills in Malaysia's online crowdsourcing platforms, with design, media, and architecture dominating at 33.60%, showing a booming creative industry. Business, accounting, Human Resources, and legal services follow at 11.74%, indicating a substantial need for professional expertise. IT and software-related services hold a significant share at 11.20%, reflecting Malaysia's growing digital economy. Linguistic skills and content creation are in demand, with translation and languages at 8.77% and writing/content at 8.50%, respectively. Administrative support services, represented by data entry/admin at 8.50%, are essential, indicating reliance on freelancers for routine tasks. Sales and marketing (5.67%) and virtual assistance (3.24%) also feature, showing the reliance on freelancers for promotional strategies and administrative support. Niche skills like engineering/science (2.29%), arts/crafts/music (1.89%), and data analysis (1.75%) are present but at lower percentages, reflecting specialized demands within certain industries. This data emphasises the diverse and evolving nature of Malaysia's digital economy, with businesses and individuals seeking a wide range of freelance expertise. The word cloud depicted in Figure 5 presents a breakdown of individuals possessing various skills, with notable concentrations in data entry and graphic design, each represented by 15 and 16 individuals, respectively. Business development and web development follow closely with four individuals each. It was evident that skills related to digital content creation, such as content writing and multimedia design, are also in demand, with three individuals listed for each. Additionally, while certain specialized skills like 3D animation and copywriting are represented by only two individuals each, they still demonstrate their presence in the freelancing market.

Performance Metrics

Figure 6: Average of the star rating for each skill category

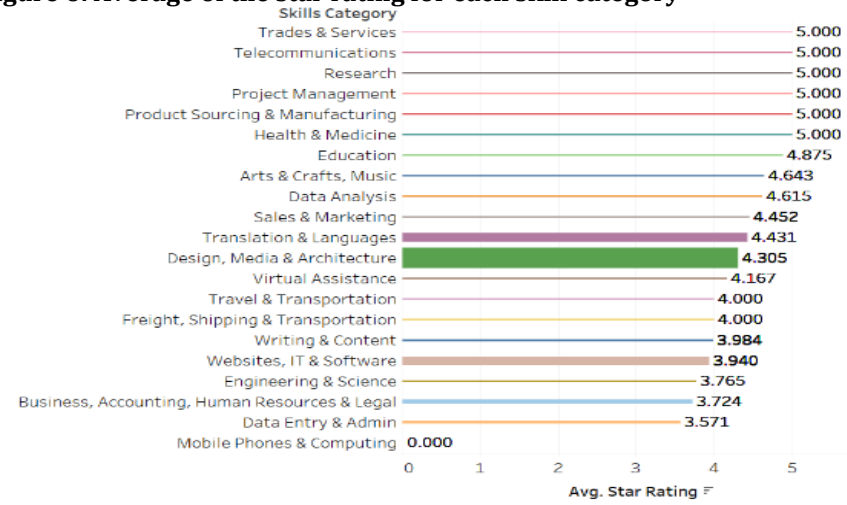


Figure 6 shows the average star ratings of the freelancers for different skill categories within the freelancing platforms. The skills related to Health and Medicine, Product Sourcing and Manufacturing, Project Management, Research, Telecommunications, and Trades and Services receive high ratings of 5.0, indicating exceptional satisfaction levels among clients. Education also stands out with a high rating of 4.9, suggesting a high degree of client satisfaction in this domain. Among the skill categories, Business, Accounting, Human Resources and Legal, Data Entry and Administration, Engineering and Science, Websites, IT and Software, and Writing and Content receive star ratings below 4, indicating areas where client satisfaction may be comparatively lower or where improvements could be made to enhance service quality and meet client expectations. These lower ratings suggest potential areas for freelancers in these skill categories to focus on improving their offerings or addressing any issues that may be impacting client satisfaction.

Figure 8: Total review for each platform

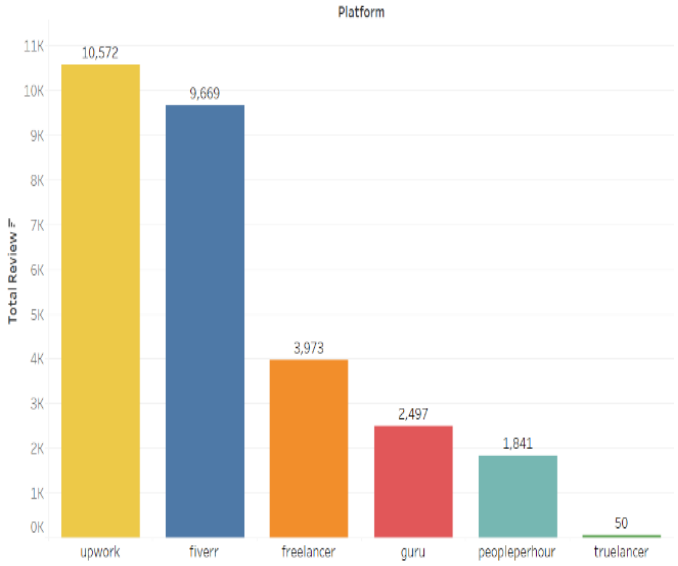


Figure 7: Rate of review for each platform

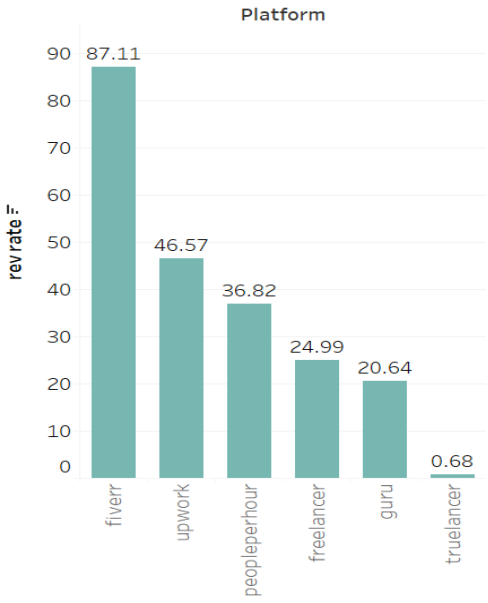


Figure 7 shows the total number of reviews received by different freelancing platforms. Upwork stands out with the highest number of reviews at 10,572, indicating its popularity and widespread usage among freelancers and clients. Fiverr follows closely behind with 9,669 reviews, showcasing a significant presence in the freelancing market. Freelancer.com also garners a considerable number of reviews at 3,973, suggesting its relevance and active user base. Guru.com and PeoplePerHour receive 2,497 and 1,841 reviews, respectively, indicating moderate levels of activity on these platforms. Truelancer, with 50 reviews, appears to have a smaller user base compared to other platforms. Figure 8 depicts the rate of reviews for each platform as compared to the total users in the crowdsourcing platform to show the level of engagement of the registered users in these crowdsourcing platforms. The higher review rates indicate that the crowdsourcing platform has a more active user base and vice versa. Based on the graph, Fiverr exhibits a high review rate of 87.11, followed by Upwork (46.57). PeoplePerHour also demonstrates a substantial review rate at 36.82, reflecting a significant level of user engagement. Conversely, Freelancer.com and Guru.com exhibit lower review rates, with 24.99 and 20.64, respectively and Truelancer stands out with a notably lower review rate of 0.68. The Freelancer and Guru have a large number of registered users who are not actively engaged as genuine freelancers due to various factors. These reasons could include a lack of suitable projects available on the platform, a mismatch between the skills offered by freelancers and the demands of clients. Additionally, some users may register on multiple platforms simultaneously, which leads to a dilution of their activity across different platforms. A lower review rate may also raise concerns about potential scammers, as it could suggest that many users register on the platform but do not receive any reviews.

Figure 9: Total review versus review rate for each state in Malaysia

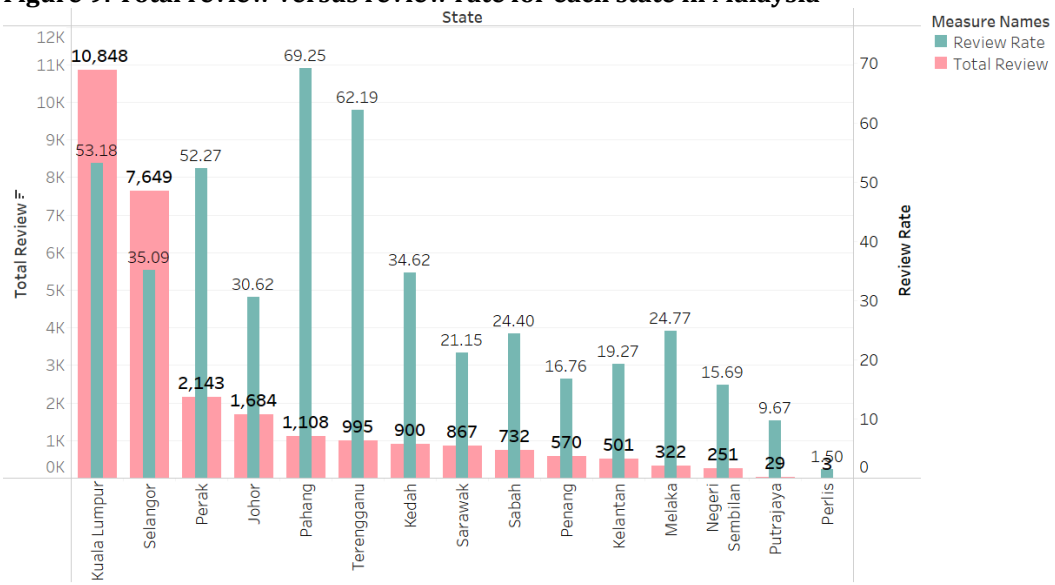


Figure 9 depicts a comparison between the number of reviews and the review rates across all platforms, grouped based on the states in Malaysia. Given that many freelancers are located in Kuala Lumpur and Selangor, these regions receive a substantial number of reviews, with 10,848 and 7,649 reviews, respectively. However, in terms of review rates, it is evident that registered users from Pahang, Terengganu, Perak, and Kedah exhibit higher levels of engagement and activity compared to those from Kuala Lumpur and Selangor.

Figure 10: Total review versus review rate for each skill category

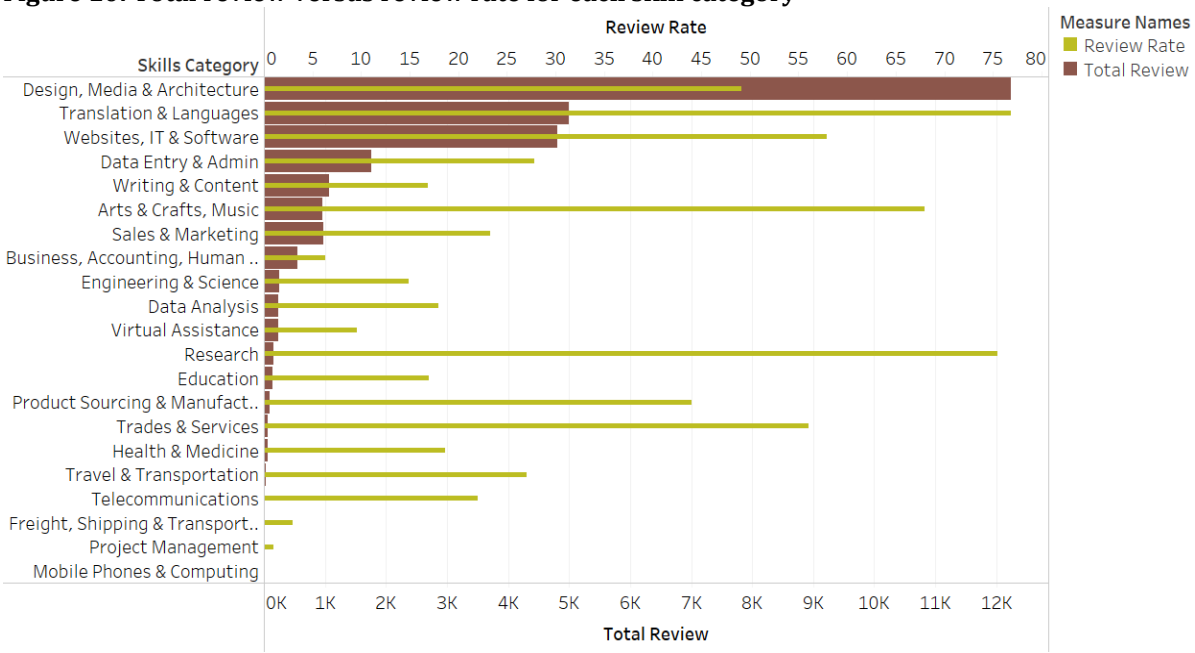


Figure 10 illustrates comparisons between the total number of reviews and review rates for each skill category. Design, Media, and Architecture types of jobs received the highest number of reviews, followed by Translation and Languages, Website, IT, and Software. However, skill categories such as Research and Arts, Crafts, and Music are considered to have high review rates despite having a lower number of reviews. The statement describes the contents of Figure 12, which presents comparisons between the total number of reviews and the review rates across different skill categories. It highlights that certain skill categories, such as Design, Media, and Architecture, have received a high number of reviews, indicating their popularity among freelancers.

Additionally, it notes that skill categories like Research and Arts, Crafts, and Music have relatively fewer reviews but maintain high review rates, suggesting that despite lower overall engagement, the users within these categories are highly active and engaged in providing feedback.

5. Discussion and Recommendations

Geographical Distributions

The widespread presence of freelancers across the states suggests the popularity of digital freelancing in Malaysia. The concentration in urban areas such as Kuala Lumpur and Selangor might be due to greater access to resources, technology, and potential clients compared to rural areas. However, this does not necessarily imply a lack of interest in freelancing in less populated areas. Further research is needed to understand the factors behind the observed distribution. It would be beneficial to know the demand for these skills from clients to understand the potential market fit for freelancers in each state.

Freelancer Skillsets

Design, media, and architecture lead the way at 33.60%, signifying a thriving creative sector utilizing online platforms to find work. Engineering/science (2.29%), arts/crafts/music (1.89%), and data analysis (1.75%) are present, reflecting specialized freelance work demands in specific industries. While this data highlights the most popular skill categories, it might be valuable to explore the average earning potential associated with each skill to understand potential income opportunities for freelancers.

Crowdsourcing Technology

Upwork and Freelancer.com tend to be the most popular platforms across various skill categories. Guru.com stands out for Business services, while Fiverr is preferred for Arts & Crafts. Specialized skills like Education or Health & Medicine see a lower presence compared to broader categories like Design or Writing. This finding highlights the importance of considering both skill set and platform preferences when seeking or offering freelance services. It is suggested to understand the reasons behind platform preferences for each skill category. Examining the average project rates or competition levels across platforms could also provide additional context to these findings.

Star Rating and Review

Client satisfaction varies across different skill categories in Malaysian freelancing. Identifying areas for improvement based on client reviews can help freelancers enhance their service quality and strengthen their competitive edge. Freelancers in these lower-rated categories, such as Business, Accounting, HR & Legal, Data Entry & Admin, Engineering & Science, Websites, IT & Software, and Writing & Content, should consider analyzing client reviews to identify areas for improvement. By considering these limitations and insights, this data can be a valuable starting point for improving client satisfaction within the Malaysian freelancing landscape. The hierarchy of popularity among freelancing platforms in Malaysia has found Upwork and Fiverr emerge as the dominant players, followed by Freelancer.com, based on the number of reviews received. However, the number of reviews does not necessarily equate to overall platform quality. Client satisfaction ratings and project completion rates could provide a more holistic picture. There is a geographic disparity between the volume of reviews and user engagement for freelance platforms in Malaysia. A high number of reviews does not necessarily translate to high user engagement. The finding suggests that while Kuala Lumpur and Selangor attract more freelancers and thus have a higher volume of work, users in Pahang, Terengganu, Perak, and Kedah might be more involved in freelancing activities. The study highlights the need to consider user engagement metrics alongside the number of reviews when evaluating platforms or freelancer performance. Further research could explore the reasons behind the regional variations in review rates.

A high average rating with fewer reviews might indicate a smaller, selective user base. A lower average rating with a high volume of reviews suggests a broader user base with mixed experiences. Freelancer.com and Fiverr might have stricter quality control or cater to a niche market, leading to a smaller pool of highly-rated freelancers. Upwork, with its larger user base, might have a wider range of freelancer quality, reflected in the lower average rating but significantly higher total reviews. Clients can weigh average rating and total reviews to assess platform reliability and find freelancers with a good track record. Platforms with lower average ratings might consider quality control measures to improve user experience.

Malaysian Digital Economy Corporation (MDEC) Perspectives

Throughout history, major crises have consistently fueled rapid innovation that shaped both society and industry. An increasing demand for digital literacy, with an estimated 90% of future jobs requiring such skills. A shift towards developing 'composite' capabilities blending technical and professional skills, with technologies like AI, big data analytics, cloud computing, and intelligent automation playing important roles. MDEC's Premier Digital Tech Institutions (PDTIs) are addressing the demand for skilled digital talent by collaborating with the Ministry of Education Malaysia and industry leaders to provide comprehensive education and training. Amidst the MCO, some PDTIs offer noteworthy eLearning courses, presenting potential recruitment opportunities in fields like Cybersecurity and Data Science. The digital economy is projected to contribute over 21% to Malaysia's GDP by 2022, despite anticipated challenges. Embracing digitalization presents an opportunity for economic advancement and shared prosperity. Businesses are likely to adopt a more flexible approach to hiring, relying on project-specific expert teams rather than maintaining fixed headcounts and physical office spaces in an uncertain economic landscape. However, challenges such as the digital divide persist, particularly in rural areas, exacerbating inequality. Initiatives like MDEC's GLOW aim to empower Malaysians by promoting online platforms for income generation and tapping into a diverse pool of freelance and remote workers. Importantly, navigating the digital transformation is crucial for Malaysian businesses to thrive in a rapidly evolving landscape, with concerted efforts needed to bridge gaps and ensure inclusive growth.

Conclusion

This study highlights the growing significance of digital freelancing in Malaysia, driven by the widespread adoption of crowdsourcing platforms. The findings reveal a concentration of freelancers in urban areas like Kuala Lumpur and Selangor, attributed to better infrastructure and client access, while rural participation remains limited. Creative skills dominate the market, yet technical fields with higher earning potential are underrepresented, signaling a need for strategic upskilling. Platform preferences vary by specialization, with Upwork and Fiverr leading, but niche platforms catering to specific industries. Client satisfaction trends indicate room for improvement in sectors like business services and IT, where freelancers could benefit from refining service quality. To harness the full potential of digital freelancing, collaborative efforts are essential—policymakers must enhance digital inclusivity, platforms should optimize transparency and support, and freelancers need to adapt to evolving market demands. Future research could explore regional disparities in depth, the impact of AI on gig work, and cross-border comparisons within ASEAN. By addressing these dynamics, Malaysia can foster a more robust and equitable freelancing ecosystem that supports economic growth and workforce adaptability.

Authors' Declaration: - Conflicts of Interest: None.

- I/We hereby confirm that all the Figures and Tables in the manuscript are mine/ours. Furthermore, any Figures and images that are not mine/ours have been included with the necessary permission for re-publication, which is attached to the manuscript.

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