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Learning for platform-based gig work: Exploring the value of micro and digital credentials

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Executive Summary

Digital transformations have had significant impact on the way we learn and the way we work. Increased access to technology and the internet has accelerated the pace of 'learning' and altered the sources of 'earning'. The worldwide rise of the platform economy is part of this phenomenon and has introduced new opportunities as well as new challenges for the labour market. In a span of just ten years, the number of digital labour platforms in G20 countries has grown from 128 to 611 and represents around 79% of the platforms operating around the world (ILO, 2021). As per some estimations, more than 40 million workers in the global south find work through these digital labour platforms (The University of Manchester: Global Development Institute, n.d.). On the one hand, the growth of digital labour platforms has expanded job opportunities for skill-based professionals and Technical and Vocational Education and Training (TVET) trainees in the global south, enabling them to access a broader range of online jobs in the form of platform-mediated tasks. On the other hand, the demand-supply mismatch has exaggerated issues related to skills gaps: the relevance of and access to training, and upskilling opportunities, and potential exploitation of online workers due to limited labour rights and protections.

Digital Labour Platforms – services that mediate the transaction between a customer and a worker (skilled professionals offering their services) - are now a vital part of society. The types of work being mediated digitally via these platforms can be online and remote such as programming, logo design or data labeling, or can be situated in a specific location such as with ride-hailing, delivery, or beauty services. The past decade has seen a steady increase in 'gig workers' or 'platform workers' offering services in both these types of work (ILO, 2021). For workers, these digital labour platforms offer promising advantages like flexibility, low entry barriers, and the ability to work independently, making them an attractive job marketplace. At the same time these platforms can pose serious threats to decent work and fair conditions. Gig work often lacks job security, minimum wages or benefits, and other forms of social protection. Additionally, the gig economy perpetuates income inequality, as workers may struggle with unstable earnings and limited bargaining power. Concerns also arise regarding the erosion of traditional employment relationships and the shifting of risks onto individuals. Moreover gig workers, and especially women, often face challenges accessing social welfare programs and have limited avenues for career advancement or skill development in addition to the costs of technology and internet.

It is difficult to identify just how many people rely on digital labour platforms as the primary source of income, with many sharing their work accounts due to lack of devices/internet and some working on multiple platforms part-time. In a 2021 study it was estimated that there could be as many as 163 million registered worker profiles on cloudwork platforms (where services are mediated and delivered online) with about only 11% of them active and working through a platform (Kässi, Lehdonvirta, & Stephany, 2021). In addition, millions of workers are registered on and work through location-based platforms. Many of these individuals also rely on formal or informal TVET institutions to acquire fundamental skills and competencies, which they can then leverage as valuable assets as platform workers. The rapid pace of technological advancements and growing com-

petition, however, necessitates continuous learning and upskilling for both learners and gig workers. For platform-based gig workers, micro-credentials provide a convenient pathway to upskill and showcase their expertise on certain digital platforms and to potential customers.Micro-credentials, akin to the gig economy, represent a noteworthy shift in the labour and education markets, offering shorter, digital, and easily accessible opportunities. It is worth noting here that micro-credentials and digital credentials are one element of a broader holistic approach to promote opportunities for decent work in the gig economy (particularly for marginalised groups) rather than as has been described in other reports, as a panacea for the platform economy and educational world.

Micro-credentials and digital credentials have become ubiquitous phrases, being widely used in education contexts. With the rapid growth of digital learning platforms, TVET institutions have opened up to the concept and have started to recognize micro-credentials and their potential in enhancing skills for a rapidly evolving job market. While some institutions are successfully integrating micro-credentials into their programs, there are notable gaps that hinder their widespread adoption. These gaps include limited awareness and understanding among instructors and students, inconsistent quality assurance mechanisms, and a lack of standardized frameworks for assessing and recognizing micro-credentials. These gaps are leading to frustration, a lack of portability, and are reducing the impact that these tools could have on upskilling and reskilling today's TVET learners. As more and more TVET and skills professionals seek work via digital platforms, they face additional challenges. Current limited awareness of what credentials are, hinders platform-based gig workers in understanding the potential benefits of micro-credentials for skill enhancement amongst other reasons. Availability of gig worker-specific micro-credentials is another issue, necessitating a more comprehensive range of courses to be made available. Often, cost can act as a barrier, given the financial constraints and lack of employer-funded training. Validation of micro-credentials is challenging in the informal gig work setting, impacting their credibility to clients and platforms. Addressing these challenges requires targeted interventions including awareness campaigns; affordable and relevant micro-credentials; and mechanisms for validating and recognising gig workers' skills.

This research was organised to unpack the intersectionality between digital learning, the platform economy, and (micro/digital) credentialing. The research team has surveyed over 1600 gig workers from four case study countries, interviewed experts from six continents, and engaged with significant desk-based research and peer-exchange. The study not only looked at the topic from the perspective of 'current workers as lifelong learners', but also explored the preparedness of 'TVET learners as future workers'.

Whether achieving micro-credentials or being able to showcase digital credentials increases workers' earnings is complex and has not been definitively answered. Though, what has been identified is that, especially in platforms in which workers are allowed to showcase their micro/digital credentials, those with these credentials receive more work than those without them. Whilst, therefore, it cannot be said whether workers may increase their earnings through credentials, they are becoming on some platforms, a necessity to receive work at all.

A number of themes and recommendations have been identified from this research. If actioned, these have the potential to increase the benefits of micro and digital credentials for both TVET learners and gig workers. The advent of digital learning platforms and global education providers means that it is easier to get access to many short courses and micro-credentials. However, very little data is available that explores this intersectionality and in particular the relevance of these credentials for gig workers and how they could enhance their career.

Based on these findings, the main recommendations from this research are:

- Policymakers must urgently create and apply national, regional, and globally agreed definitions of micro and digital credentials to more broadly promote the benefits of, and wider understanding of, these concepts in addition to ensuring the portability of these credentials.
- Increase the availability of, and training in technology and internet to workers so that they are not disadvantaged by the digital divide, alongside increasing the potential for micro-credentials to be available offline where appropriate.
- TVET institutions are already respected as venues of learning. These should be allowed to develop and utilise industry-relevant micro-credentials by leveraging existing industry engagement mechanisms. Here various instruments of labour market information such as skills-gap mapping, sector skills councils and formal/informal employers have a role to play.
- Education institutions (schools until university), industry and government should collaborate to ensure that the terms of credentialing are more widely understood and respected so that employers understand the benefits of workers undertaking credentials, as well as giving education providers the understanding that credentials are respected within industry and are a vital part of the lifelong learning process.
- More avenues need to be available – especially for women, people with disabilities, and refugees – to be able to access and complete micro-credentials to upskill and reskill themselves to have a better, independent future.

Abbreviations

Table 1: Abbreviations used throughout the reports.

DLP	Digital Labour Platform
ILO	International Labour Organization
RPL	Recognition of Prior Learning
TVET	Technical and Vocational Education and Training
OER	Open Education Resources

Definitions:

Table 2: Working definitions of key definitions used in the report.

Term	Definition
Micro-credential	A learning activity which is shorter than a qualification and has an element of assessment so the learner can demonstrate their achievement.
Digital Credential	A digital record of focused learning achievements, verifying what the learner knows, understands and/or can do. The recognition of a piece of learning available online, usually in a digital certificate or digital badge format.
Digital badging	A clickable graphic that contains an online record of an achievement, the work required for the achievement, evidence of such work, and information about the organization, individual, or entity that issued the badge.
Macro-credential	A 'traditional' qualification, quality assured by a recognised provider after a period of learning and assessment.
Gig economy	People who find work through digital platforms, regardless of their employment status (e.g. employees or independent contractors).
Platform-based gig work	A form of employment where individuals find short-term jobs or tasks through online platforms, connecting buyers with sellers. Workers, often freelancers, perform various services like driving, delivery, or freelance tasks. The work is flexible, on-demand, and facilitated via the platform.
Digital Labour Platform	a digital labour platform is a company that mediates and facilitates "labour exchange between different users, such as businesses, workers and consumers.
Cloud or Online worker	This type of gig work, mediated through a digital labour platform, can, in theory, be performed from anywhere via the internet (e.g. data categorisation or online freelancing).
Location-based worker	This type of gig work, mediated through a digital labour platform, is required to be done in a particular location (e.g. delivering food from a restaurant to an apartment or driving a person from one part of town to another).

Table 2: Working definitions of key definitions used in the report.

Definitions:	
TVET as part of lifelong learning	This can take place at secondary, post-secondary and tertiary levels and includes work-based learning and continuing training and professional development which may lead to qualifications.
Lifelong Learning	Any learning activity undertaken throughout life in a formal, non-formal or informal setting, which results in improving knowledge, know-how, skills, competences and qualifications for personal, social or professional reasons.
Digital Transformation in context of TVET	The planned and structured introduction of technology into institutions and national TVET systems with the goal of enhancing scope, scale, efficiency, effectiveness and ultimately, ensuring more sustainable development.
Skills development	TVET also includes a wide range of skills development opportunities attuned to national and local contexts. Learning to learn, the development of literacy and numeracy skills, transversal skills and citizenship skills are integral components of TVET.
Decent Work	The International Labour Organization (ILO) defines decent work as "productive work for women and men in conditions of freedom, equity, security and human dignity". Decent work involves opportunities for work that: is productive and delivers a fair income; provides security in the workplace and social protection for workers and their families; off ers prospects for personal development and encourages social integration; gives people the freedom to express their concerns, to organize and to participate in decisions that affect their lives; and guarantees equal opportunities and equal treatment for all.
Global North and Global South	As per UNCTAD Stats 2022, the Global North refers to developed economies, the Global South to developing economies. The developing economies broadly comprise Africa, Latin America and the Caribbean, Asia without Israel, Japan, and the Republic of Korea, and Oceania without Australia and New Zealand. The developed economies broadly comprise Northern America and Europe, Israel, Japan, the Republic of Korea, Australia, and New Zealand. This categorization is based on a distinction between developing and developed regions that was commonly used in the past (see Hoffmeister, 2020) and is maintained by UNSD with the understanding that being part of either developed or developing region is through sovereign decision of a state.

Introduction

Purpose of the Study

Referred to by some as “gig qualifications for the gig economy” (Wheelahan & Moodie, 2022) , micro-credentials outwardly have significant relevance to the gig economy and workers within it. The nature of micro-credentials being short, focused, industry-relevant, and flexibly delivered makes them a good conceptual match to a labour market that is defined by variability, competition, and specific sets of skills.

Despite their face-value relevance to the gig economy, and significant research suggesting the potential value of micro-credentials generally , there is little research to link the potential value of micro-credentials to the TVET learners and workers active in the gig economy. This research has been designed to provide an initial exploration of this area and to provide usable insights for policy makers and other stakeholders across the sectors. It attempts to unpack the intersectionality between upskilling, platform economy and credentialing. It is worth noting here that we do not regard micro or digital credentials as a panacea for improving the lot of workers in the platform-based gig economy, however, we do believe that they have significant potential to help workers in the gig economy alongside other initiatives.

To provide a more impactful discussion of this sparingly discussed topic, this study focuses on areas where current evidence suggest micro-credentials and digital credentials may have the greatest value.

This study focuses on:

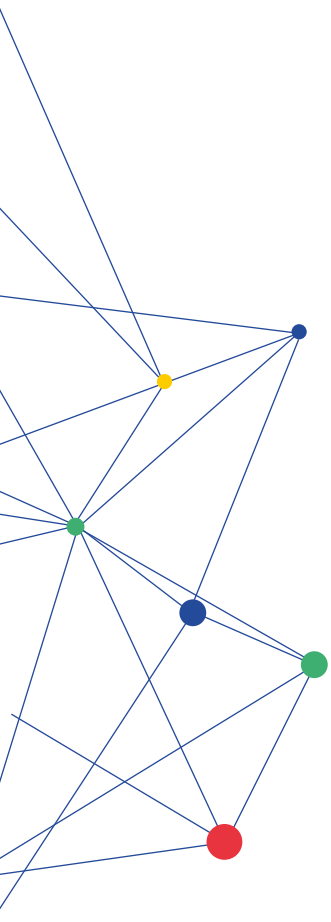
- **Digital labour platforms** – key mediators bringing together clients and service providers via online platform/space; also locations where high volumes of gig work are transacted, and where allocations of work and income are managed, in part, algorithmically.
- **Global south** – developing economies with high reliance on informal work, high demand for employment opportunities and multiple sources of income and locations where the gig economy is already strong and fast growing.
- **Sectors with lower barriers to entry** – typically those characterised by informal learning or entry-level vocational training, or a higher supply of labour resulting in competition for jobs / tasks or those with a greater potential for economic mobility resulting from upskilling and further TVET training.

[1] Whilst the discussion by Wheelahan and Moodie outlines the alignment of micro-credentials and gig work, it should be acknowledged that this discussion also presents a critique of micro-credentials and their potential role in changing the educational landscape and reinforcing typically precarious modes of work.
[2] The gig economy refers to all economic activity that is done on a temporary basis, typically independently, and that is often short-term and without standard employment rights.
[3] See (Giedre, et al., 2023) for a recent review of the value of micro-credentials.

Therefore, the purpose of this study is to:

Explore the value of **micro and digital credentials** for workers using **digital labour platforms** from the **global south** and within sectors that have **lower educational barriers to participation.**

This study will also frame its results through a Technical and Vocational Education and Training (TVET) lens as a large part of services transacted via the digital labour platforms are skills-based. This study explores the value of these credentials to specific sectors and forms of formal and informal TVET that are more relevant for the digital economy. Results and subsequent recommendations will consider stakeholders from both TVET and digital economy policy as a key audience.



Key Concepts

In recent years, concepts around platform work, gig economy and digital labour platforms have been researched from both economic and social aspects. Similarly, the micro and digital credential landscapes are relatively well researched in the context of digital learning platforms, online learning, and further education. Research is also available around the relevance of credentials for learners with higher technical skills and the value these credentials generate for them as 'on-demand' specialists, cloud workers, or online freelancers. However, there is a significant gap when it comes to understanding their relevance for low to medium skilled professionals who are increasingly relying on the digital labour economy for task-based work.

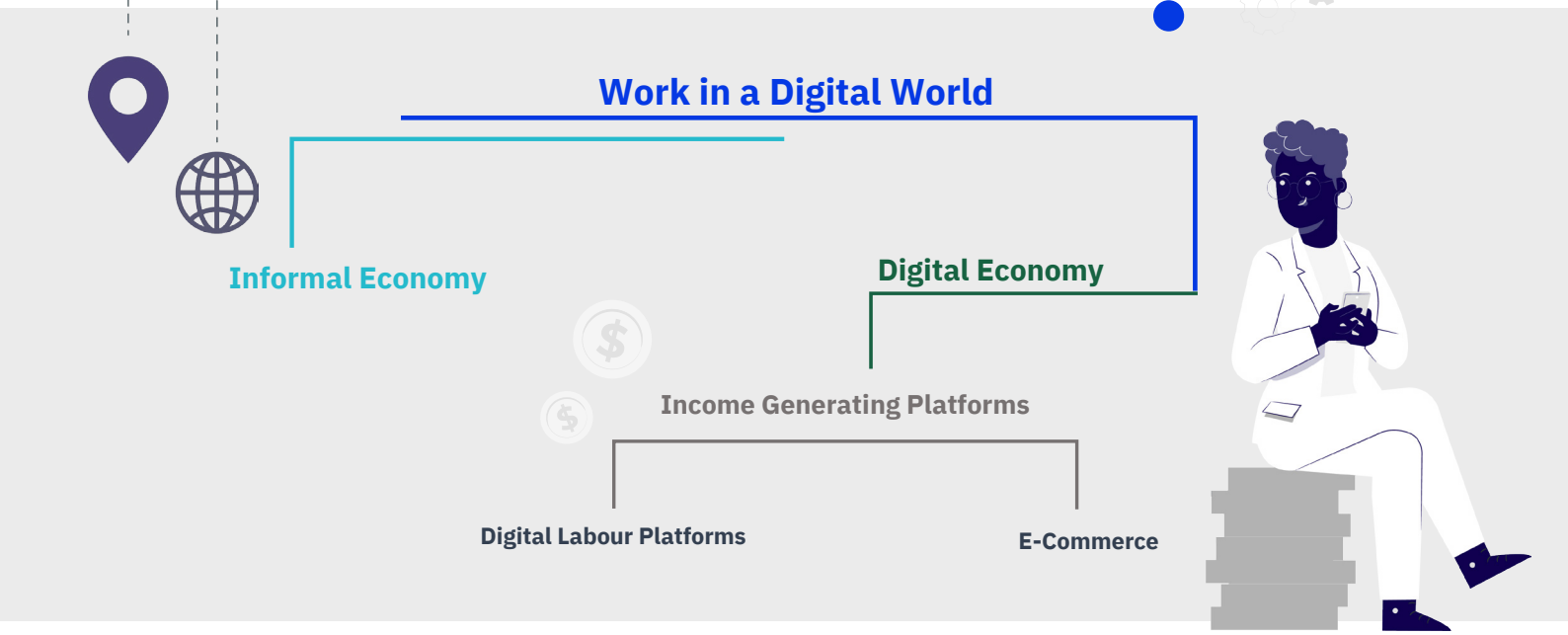
The recent rise of digital labour platforms has already raised concerns around regulation, policy guidance and supporting structures for workers. Those working on digital labour platforms also deal with biases, particularly women. When looked at from the TVET lens or that of the adult learners who are potential participants of this digital economy, several new implications start to emerge. One of the results is that there is little agreement about what these underpinning concepts or terms mean. Key concepts to the report are explained and defined in this section. It is important to emphasise that these definitions are useful for the context of this study but do not necessarily reflect consensus within the literature.

Platform-based gig economy

The platform-based gig economy, or the 'platform economy', describes all work that is mediated through digital labour platforms – platforms that facilitate the transaction of labour between a worker and a buyer of work.[4] Sitting underneath the umbrella term 'gig economy', the platform economy facilitates a growing proportion of gig work transactions, despite being difficult to measure (ILO, 2022), and it is for this reason that some use the two terms synonymously. This study, however, is focused on the platform-based gig economy and respects the distinction between the two concepts.
The 'platform economy' is characterised by two main types of work: work that is delivered online (cloud-based) and work that is delivered at a specific location (location-based), both mediated through a digital labour platform.

[4] Some examples of digital labour platforms include: Uber (ride hailing), DoorDash (food delivery), Taskrabbit (domestic services), Amazon Mechanical Turk (online micro-tasking) and Upwork (online freelancing).

Typology of platforms



Some examples of typical sectors for location-based and cloud-based work are given below in Table 3. It should be noted that, due to the loosely dichotomous nature of tasks for cloud-based work, some also prefer to split the categorisation of cloud-based work into smaller, lower-skilled tasks, and longer, higher-skilled tasks (Pesole, Fernández-Macías, Brancati, & Herrera, 2019). This is reflected in the Table sectors 'technical and creative freelancing' and 'micro-work'. As stated in the previous section, this study is focused on sectors that have lower educational barriers to entry. Sectors that have lower educational barriers to entry often attract those from vulnerable/marginalised groups, due to their position in society and barriers to accessing education, including women, young people, and ethnic minorities. This means that this study is more concerned with the micro-work sector than it is with other sectors with greater educational requirements. The latter will be discussed where relevant and is included in this report's concept of the platform economy.

Table 3: Example industry sectors for location-based and cloud-based digital labour platforms and apps.

Platform economy area	Example industry sectors
Location-based work	• Delivery and courier services, such as for food or packages. • Transport of people, such as ride-hailing. • Care for people, such as aged care or community services. • Trade services, such as carpentry or plumbing. • Personal and beauty services, such as makeup artistry or nail technicians.
Cloud-based work	1. Technical and creative freelancing, online tasks typically requiring high levels of skill and/or qualifications. 2. Micro-work[5], online tasks requiring lower levels of skill and/or qualifications.

[5] Micro-work, otherwise known as crowd-work, refers to short and lower-complexity tasks completed online, such as taking surveys or AI validation training.

So, when referenced in this report, the platform economy refers to:

‘Economic activity that is transacted through digital labour platforms or apps, on a short-term / temporary basis.’

Whilst this report focuses on the skills gaps and issues surrounding the acquisition of knowledge and competencies relevant to the platform-based gig economy, it is also characterised by unique challenges. In most cases, digital labour platforms set the framework and rules for exchanges between workers and clients, meaning that gig economy workers face unclear employment relationships, often classified as ‘self-employed’ or ‘independent’ contractors. Workers are deprived of many labour rights and social protections, frequently facing low wages, precarious work, insecurity, and exposure to new forms of control management through technology. Societal inequalities are often reproduced in algorithms, ingraining inequalities – including those based on gender - in digital platforms. Gig economy workers also face challenges building collective organisation and bargaining. Major regulatory gaps affecting the gig economy require action. Improving awareness of these issues through microlearning, campaigns and other learning formats can prepare workers about the implications of being part of the digital workforce.

Micro-Credentials

Whilst the term micro-credential is a relatively new concept, the actual function of a micro-credential is not new. Any course shorter than a qualification could be argued to be in some respect, a micro-credential. The defining and understanding of what differentiates a micro-credential from any other type of course, is important to showcase their relevance. As to why these matter, our perception is that in the current platform-based gig economy, skills and the ability to showcase these skills is changing sometimes from week to week, or month to month. It is not feasible to expect new qualifications or fully fledged regulation in these areas to be available in the short term. With the advent of micro-credentials, there is the possibility that some of these new skills, required by industry urgently, can be trained in such a way that industry and government will approve of them and be recognised in some respect, and therefore valued, likewise giving workers the opportunity to learn new skills, and be valuable to the gig economy.

There is no globally agreed definition for micro-credentials and several other terms exist that are used relatedly or interchangeably with ‘micro-credentials’ (UNESCO, 2022). At a high level, micro-credentials can be conceptualised as small units of learning that are certified in some way so the learner can demonstrate their achievement[6] . This may be intuited from the name, micro = small and credential = a demonstrable achievement, but these factors alone are insufficient to enable discussion of the educational complexities in this area. Questions arise from this overly simplistic definition, such as: how small, and how large, can a micro-credential be? How can a micro-credential be delivered and what topics can they cover? And how can micro-credential achievements be demonstrated? These questions are briefly addressed below, and a working concept of micro-credentials is given for this study.

[6] See, as an example, a European Commission definition of micro-credentials: “A micro-credential is a recognized proof of the learning outcomes that a learner has achieved following a short learning experience, according to transparent standards and requirements and upon assessment.” (European Commission, 31 August 2020)

Size is a key differentiating factor between micro-credentials and other educational credentials. Despite this, there isn't a widely accepted theoretical minimum or maximum, for the size of a micro-credential. Some have made efforts to define these, but none fully capture the potential scope of micro-credentials. The New Zealand Qualifications Authority (NZQA), for example, has recently produced guidance for the implementation of micro-credentials which state that a micro-credential cannot be larger than 40 credits and should be at least 1 credit, with 1 credit representing 10 hours of learning (Neal, Klinkum, & Miller, Improving relevance and responsiveness: Aotearoa New Zealand's rationale for micro-credentials, 2022). This implies a maximum micro-credential size of 400 learning hours, much more than what most would consider to be a 'micro' unit of learning. This value was practical for New Zealand as, historically, nationally accredited qualifications have had a minimum credit value of 40; however, it is therefore likely that this maximum value is not universal and that different maximum values will exist based on local contexts. NZQA have shown their flexibility however, in the first half of 2023 they amended their minimum credit requirement of a micro-credential from 5 credits (50 hours) to 1 credit (10 hours), which we believe is partly as a result of credential developers better understanding the sizes of credentials that allow for effective assessment, that learners are willing to complete, and that stakeholders, such as employers, value.

Similar efforts are being made in other countries, across the United Kingdom for instance there are currently no formal micro-credential policies in place, across any of the four nations (Martin, Formalising the informal?, 2023). There are signs however, that that is beginning to change. In March 2021, the Scottish Credit and Qualifications Framework (SCQF) published a research report into the potential of micro-credentials in Scotland. As in New Zealand, the report argues that a micro-credential shouldn't just be duplicating existing education but needs unique features (Scottish Credit and Qualifications Framework, 2021). For the sakes of their project, they defined a micro-credential as "between 10- 60 hours, which would result in recognition of a particular skill...would be formally recognised...delivered and assessed mostly online" (Scottish Credit and Qualifications Framework, 2021).

Universities around the UK do offer micro-credentials in some instances, including through partnerships. For example, the Open University offers micro-credentials in collaboration with the online platform FutureLearn (Open University, n.d.). In addition to these types of partnerships, other universities create and run their own; the University of Birmingham, for instance, offers postgraduate micro-credentials. The University of Birmingham defines their micro-credentials as between 100-150 hours of work, studied online, and with some of them offering academic credit towards a Masters degree (University of Birmingham, n.d.). Whilst these credentials will be very useful to a number of people, they are limited to particular skillsets. They will also not be as useful to workers in the platform-based gig economy at present due to the limited numbers of credentials there. The advantage of a wider national policy would allow industry to have a stronger understanding of what micro-credentials can be used for along with their value, and the potential for TVET to also engage with credentialing.

In Malaysia, the Malaysian Qualifications Agency in 2020 published their guidelines for developing micro-credentials, highlighting the UNESCO definition and promoting five elements: "a. Digital certification; b. Knowledge skills or competency; c. A specific area or field; d. Component of accredited programmes or stand-alone courses; e. Serves professional, technical, academic and personal development interests of learners" (Malaysia Qualifications Agency , 2020). Most of these elements are common across definitions, with only 'Digital Certification'

being different and in some ways, merging digital credentials in with micro-credentials. Intriguingly, across providers in Malaysia not all micro-credentials are delivered online, with some offered blended, or entirely in-person.

This study considers a wide range of micro-credential sizes. No credential will be too small to be considered a micro-credential - if some element of assessment is included - and the maximum size that will be considered is sensitive to local context. To be inclusive of diverse local conceptions of micro-credentials and their size this study suggests the maximum size of a micro-credential is anything that is smaller than a regulated qualification in the territory being discussed.

This study takes an inclusive approach to the range of micro-credential delivery modes and content. This is due to the diverse range of micro-credentials that are available and the exploratory nature of this study. Some modes of learning, such as online and on-demand learning, are expected to be dominant in the research; but all modes of delivery will be included and the potentials of these will be explored where appropriate. Similarly, it is expected that discrete, modular, and stackable knowledge sets, and skills will be highly prevalent in the research - but no topic areas will be excluded.

With those points considered, the working definition of micro-credentials that will be used for this study is:

'A **micro-credential** is a **learning activity** which is **shorter than a qualification** and has an element of **assessment** so the learner can **demonstrate** their achievement.'

Digital Credentials

As with micro-credentials there is no fixed or universal definition for digital credentials and in the global landscape there is significant overlap among these. In many definitions, digital credentials are described as an alternative name for micro-credentials and vice versa. This has led to significant confusion around whether micro and digital credentials are the same product or not.

This study argues that digital credentials are a different product to micro-credentials. This study defines micro-credentials as the learning and assessment of a set of skills, with digital credentials as the recognition of a piece of learning/set of skills. This recognises that digital credentials are not just for the recognition of micro-credentials but have significant recording and signalling functions.

As with micro-credentials, this research is taking an inclusive approach to digital credentials, which are commonly digital certificates or a digital badge, which verify skills earned via training. Badging could be on a micro-credential, a qualification or recognition of prior learning.

With those points considered, the working definition of digital credentials that will be used for this study is:

'A **digital-credential** is the **recognition** of a piece of learning available **online**, usually in a **digital certificate** or **digital badge** format.'

Approach & Methodology

Research Questions

This research has been prepared around three high-level questions which have a series of associated sub-questions. These questions are intended to be broad and have been used to provide focus into a vast and under-researched space. The first question covers the current landscape of micro-credentials and digital credentials in the platform-based gig economy, the second covers the value of micro-credentials and digital credentials to the platform-based gig economy, and the third covers the systems and structures that are needed for micro-credentials and digital credentials to thrive and work for the TVET learners and gig workers.

These research questions are:

1. Do micro-credentials and digital credentials have a profile in the platform-based gig economy? If so, what is this, how are they organised, and for what purpose?
1.1. Are micro-credentials and digital credentials being used in the platform-based gig economy? If so, by who?
1.2. What purposes are micro-credentials and digital credentials being used for in the platform-based gig economy.
1.3. What micro-credentials are being offered by local education providers, including TVET providers, that are relevant to the platform-based gig-economy?
1.4. Are digital labour platforms offering or supporting micro-credentials and digital credentials?
1.5. Do digital labour platform managers acknowledge or favour workers with micro-credentials and digital credentials differently, algorithmically or otherwise? If so, does this contribute to better outcomes for workers?
1.6. What are the most common sources of micro-credentials and digital credentials for gig economy workers?
2. How could micro-credentialed learning and digital credentialed recognition positively impact current and prospective members of the platform-based gig economy? What are the skills that may lead to these impacts?
2.1. What benefits could current and prospective gig workers, such as TVET learners, receive from micro-credentials and digital credentials?
2.2. What skills, attainable through micro-credentials, have the greatest potential to improve the working lives and opportunities of gig economy workers?
2.3. What skills are platform managers currently developing, or wanting to have developed, in their workforce using micro-credentials?

2.4. What skills do gig workers from digital labour platforms want to develop using micro-credentials?

3. What incentives are in place, or would need to be put in place, for: Education providers to offer micro-credentials for the gig economy; current and prospective gig workers to use micro-credentials; and digital labour platform owners and managers to provide support for the use of micro-credentials and digital credentials?

3.1. What are education providers', including TVET providers', perceptions of micro-credentials and incentives to offer them?

3.2. What are current gig workers' perceptions of micro-credentials and incentives to acquire them?

3.3. What are prospective gig workers', such as TVET learners, perceptions of micro-credentials and the platform-based gig economy?

3.3. What are prospective gig workers', such as TVET learners, perceptions of micro-credentials and the platform-based gig economy?

3.4. What are digital labour platform providers' perceptions of micro-credentials and digital credentials and incentives to support them?

3.5. What environmental factors and incentives need to be in place to realise the full potential of micro-credentials and digital credentials in the platform-based gig economy?

Research Strategy

To address these research questions, this study presents a thematic overview of the value of micro-credentials and digital credentials in the platform economy. Then, to put this into context, it explores these themes across four partner countries of German development cooperation in the global south with large gig workforces. Countries were selected for the study based upon their relative geographic spread, internet penetration, demographic similarities (having large pools of low to high skilled workers and digitally connected populations), and high domestic demand for platform-based services. They are:

- India
- Kenya
- Mexico
- Vietnam

Each of the selected countries is characterised by a large informal economy. For instance: 10% of all digital labour platforms in the G20 are based in India. Fintech innovations such as m-PESA in Kenya have revolutionised mobile payments allowing more people to make and receive payments via apps. Vietnam has benefitted from the rising number of digital start-ups and is focusing on removing infrastructure and regulatory limitations that ail the platform economy, Mexico has a well-established and thriving gig economy that is the main source of income for many.

More than highlighting key global trends, the study is intended to identify gaps in understanding. It was anticipated that any research design that was too fixed would be at risk of missing critical elements in these emerging and relatively under-researched areas. To address this risk, this study used an adaptive approach. This allowed research methods and tools to adapt as new themes emerged and effectively explore the wide-ranging topic areas of this research. Ultimately, the types of research methods and tools did not change using this strategy, but some changes were made to data collection processes and the research tools.

A mixed methods design was used to allow for a broader exploration of themes. Both primary and secondary data collection methods were utilised. Primary methods included both qualitative and quantitative elements to simultaneously generate new themes, apply changes where necessary by using the adaptive approach, and test current themes with a wide group of stakeholders. Secondary methods were loosely structured to enable a swift and flexible understanding of existing perspectives and themes. A network approach and snowballing method was also utilised for data collection. Many areas of the gig economy, and areas of the formal / informal TVET landscape relevant to micro-credentials and digital credentials, are not well mapped or understood. The digital labour economy is particularly difficult to measure and map (ILO, 2022). To quickly understand local environments and global trends in these areas, this study allowed for participants and other third-party partners to identify prospective participants, provide local context to findings, and shape the trends of the report.

Research Tools and Processes

This study used three data collection methods:

1. A desk-based literature review.

2. Semi-structured interviews with key informants, including but not limited to:
   a. Digital labour platform owners or managers.
   b. TVET providers.
   c. Other stakeholders, where relevant, such as government representatives or key individuals from employer or education provider associations.

3. Online surveys to platform workers.

The desk-based literature review used a combination of Boolean searches within online research databases, enquiries with prominent institutions, and network-recommendations for papers to identify the key paradigms and themes in the platform economy and micro-credentials landscapes. These themes informed the initial designs of research tools and the global overview.

Semi-structured interviews were performed with key stakeholders to the platform economies in the four focus countries, in addition to experts in the field, to understand their experiences with, and perceptions of, micro-credentials. These were completed by two interviewers; notes from each session were discussed for alignment purposes. Snowball sampling methods were used to identify participants. The professional networks of the research teams and organisations were utilised in this search as well as referrals from interview participants. Interview participants provided information about their local environments, identified further stakeholders for participation, and supported access to these stakeholders where appropriate.

The questions asked in these interviews were sufficiently broad to enable perspectives to be gathered from a range of different stakeholder groups. The semi-structured nature of the tools allowed for interviewers to explore related areas that participants had deep knowledge in. These interview schedules can be found in Appendix One. Themes from these interviews were used to refine or supplement the research tools, where needed.

An online survey was released to platform-based workers in the four focus countries. These surveys gathered data on workers' experiences with, attitudes toward, and motivations to acquire mi-

cro-credentials. The questions contained within this survey are included in Appendix 3, they were released through cloud working digital labour platforms to ensure workers were compensated for their involvement in the research so that a variety of workers from different geographic regions could be included in the sample, and so that responses could be collected in a timely manner. Contributors who participated in the survey were compensated fairly, accounting for local wage levels and other factors.

Two cloud working digital labour platforms were used for this survey: Premise and Clickworker. Both platforms are orientated to work opportunities with lower educational barriers to entry; therefore, their workers were more likely to fit into our target sample. A total of 1,624 complete responses were collected from these platforms. These responses are outlined by country and platform in Table 1.

Table 1: Online survey participants by country, gender, and platform.

Country	Participants from Premise	Participants from Clickworker
India	251	200
Kenya	351	200
Mexico	399	Did not implement
Vietnam	201	22
Totals	1,202	422

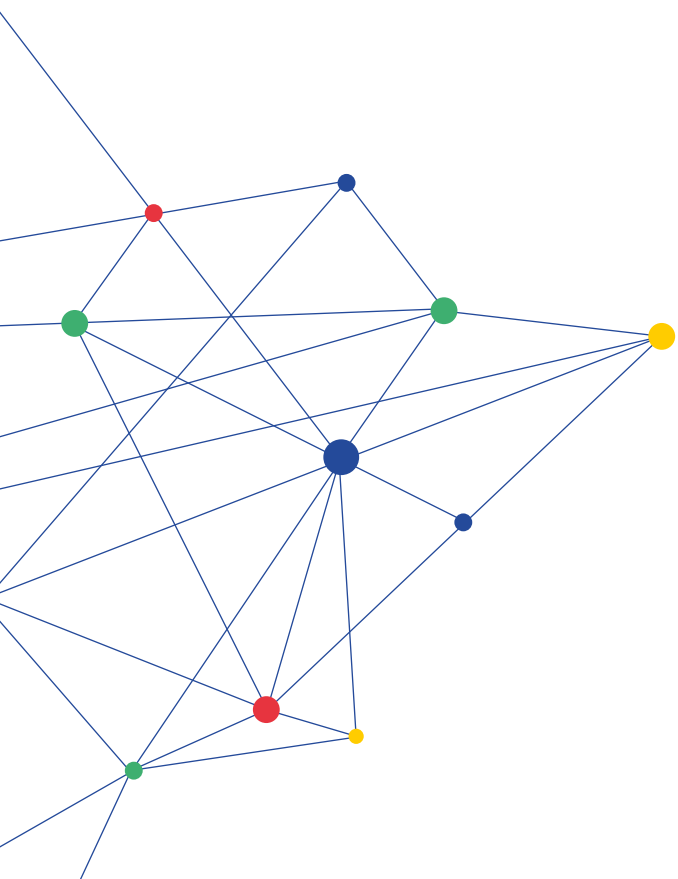
Research Limitations

This research had several key limitations or challenges. These are presented in Table 2.

Table 2: Key research limitations and challenges.

Limitations or challenge	Description
Identifying and accessing secondary data sources	The gig economy, and the platform-based economy, are hard to scope and measure, making existing data on their labour markets scarce. For this reason, it was difficult to identify existing information from these areas globally and within the case study countries. As well as this, due to the emerging nature of research exploring micro-credentials in these contexts, relatively few key secondary sources were identified in this review. It is possible that sources exist in this area beyond that accessible to the research team (this study focused on sources in the English language).
Access to networks of gig economy and TVET stakeholders	The initial research design assumed that deep stakeholder networks existed in the platform economy and that these could facilitate the identification of research participants and access to stakeholders. This study was unable to identify deep stakeholder networks in this area and, therefore, the research design adapted to suit the lower number of stakeholders that were accessible through the teams' networks.

Interview participant identification	A consequence of the limited availability of stakeholder networks, was limited access to participants with the required deep knowledge. This limited the representativeness of the participant sample. The limited secondary data on the platform economy also made it difficult to identify participants outside of existing stakeholder networks, globally, but more so for the case study countries.
Interview participation	Interview participation was likely limited by the commercial sensitivities of the interview topics for digital labour platforms and education providers as well as opportunity costs for gig workers. Participation was also likely influenced by the absence of financial incentives. These were excluded to minimise incentive conflicts with public stakeholders and ensure equity across interview groups. Future studies in the area might consider focusing on private sector participants and allowing financial incentives for participants with the aim of increasing engagement.
Limited consensus on key research terms	Key research terms are defined differently around the world and between the case study countries. Inclusive definitions were used in this study and measures were taken to build consensus around these terms with interview participants, though these differences may have affected some individuals' decisions to participate or the information they provided.
Survey biases	This study was unable to secure the partnerships required to facilitate the online survey for platform workers from digital labour platforms for location-based industries. Therefore, the survey data is exclusively from digital labour platforms for cloud-based (online) industries. All responses are from individuals who work within cloud based-industries, even if responses to the survey do include individuals who also work within location-based gig work sectors. This introduced a bias in the survey results toward those who engage in cloudwork.

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Current and Future Trends: Global

In response to the research questions from the chapter above, three main trends have been identified via desk-based research, surveys, and interviews. These trends apply to micro and digital credentialing presently and we believe they will also have an impact on the platform-based gig economy in the future.

Development of Micro and Digital Credentials

One of the great difficulties with this study was that there is no fixed definition of what a micro-credential or digital credential is. A study-specific set of broad definitions were created to ensure consistency for the study; however, there is significant variability in how these terms are defined in the literature and many researchers utilise the same terms in very different ways. This makes a fair comparative analysis more difficult and discussions relating to portability and recognition even more so.

Competing Definitions

In 2020 Malaysia launched their Guidelines to Good Practices: Micro-Credentials, defining a micro-credential and making it clear that these guidelines related mainly to Higher Education Providers. Malaysian providers offer micro-credentials online, in a hybrid format, and also in-person. Malaysia's Qualifications Authority is currently developing a proposal to create an additional type of micro-credential: their standard 'Micro-Credential' and a 'Stand-Alone Micro-Credential'. This 'Stand Alone' micro-credential is described as a credential which isn't part of or a module in a larger programme and available to be developed by industry and training providers beyond higher education (Malaysia Qualifications Authority, 2022) (Chua, 2022). This is an exciting development for Malaysia as it would significantly open the possibilities for Malaysia-based platforms and gig workers to create credentials that work for them and their needs, rather than the focus being on formal and larger higher education programmes. In November 2021 Australia published the National Micro-credential Framework which defined a micro-credential as being at least one hours work and, smaller than a qualification on their framework, with an additional requirement for industry need (Australian Government (Department of Education, Skills and Employment), 2021).
The African Continental Qualifications Framework (ACQF) alongside the African Union, published their updated brief in January 2023 outlining micro-credentials to from a global view incorporating an African view along with recommendations on how micro-credentials should be utilised within Africa.

In addition, the Kigali Declaration of 2018 was designed to create an African Continental Free Trade Area to enhance the portability of qualifications for its citizens (E-Learning Africa News, 2022). As much learning in Africa is done informally, the region (currently Malawi, Mauritius, Mozambique, Namibia, Zambia, and South Africa) has adopted recognition of prior learning (RPL) as a major piece of attempting to formalise skills and increase the attractiveness of workers in the workplace (E-Learning Africa News, 2022) (Castel-Branco & Mavimbela, 2022).

Tunisia also offers micro-credentials but under the names 'short-term training' (formation de courte durée) and 'certificate of professional aptitude' (certificat d'aptitude professionnelles). The Tunisian government regards these credentials as an opportunity

to respond quickly to the needs of companies and integrate young people quickly into the labour market. They have identified a range of potential issues however, including managing the transition from informal to formal learning, along with the challenges of national and international recognition (Romdhane, 2023).

Finally, in Slovakia, micro-credentials will be included in the 'Act on lifelong learning' (under preparation with expected adoption late 2023 or early 2024). In March 2023, to support the discussion on micro-credentials, a group of experts has proposed two terms in their most recent iteration of research into credentialing: Micro-certificates and micro-qualifications. The main difference between them is that Micro-qualifications are quality assured, regulated and sit on a qualifications framework. Micro-certificates on the other hand are defined as off-framework and not quality assured or regulated in the same manner (Gállová, 2023). It is interesting to note here that the 'assured' credential will be the 'qualification', using different wording to other countries but building on the general understanding and respect of qualifications by incorporating it within their wording.

Reviewing & Updating

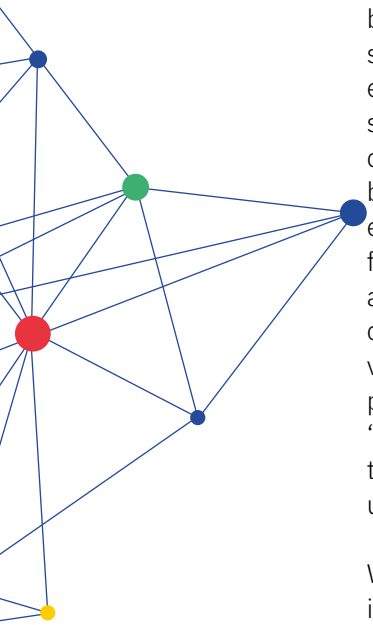
One area of concern when developing micro-credentials is how they are updated and reviewed once they have been established and who takes responsibility for this. In New Zealand for instance, when submitting a micro-credential to the New Zealand Qualifications Authority (NZQA) there must be evidence of need from amongst others: employers, industry, and/or communities (NZQA, n.d.). NZQA review micro-credentials on their framework between every 1-3 years (prior to 2023 the norm was every year but there is now flexibility to go up to three years). NZQA reviews each micro-credential for currency and to ensure that it is still relevant and if the stakeholders (industry, community etc) that it was designed for still need it.

As micro-credentials are designed around specific skills and skillsets that are required by industry, and as the NZQA example demonstrates, there will be an ongoing need to review, update, amend, and potentially replace existing micro-credentials on a regular basis. The risk of learners taking micro-credentials which are out of date and provide little or reduced value is high. The New Zealand model provides some security that any micro-credential being offered has been reviewed and that the skills it accredits are still required by industry.

Value of Micro and Digital Credentials

In addition to the debate around recognition and currency, there is the ongoing question of whether micro-credentials and digital credentials have value. When it comes to both types of credentials, there are two questions to consider: Are they created by the provider themselves or are they created by, or quality assured by, a third party?

New Zealand has had an interesting micro-credential journey, launching them originally in 2018. In New Zealand, micro-credentials are on the New Zealand Qualifications Framework (NZQF), and to be on there they must be approved and accredited by the New Zealand Qualifications Authority (NZQA) (Neal, Klinkum, & Miller, Improving relevance and responsiveness: Aotearoa New Zealand's rationale for micro-credentials, 2022). To achieve accreditation the training provider must be able to demonstrate how the micro-credential has credible value at the present time with evidence of community or industry need. Each micro-credential is reviewed by NZQA every one to three years to ensure continued validity (Neal, Klinkum, & Miller, Improving relevance and responsiveness: Aotearoa New Zealand's rationale for micro-credentials, 2022). By having their micro-credentials all quality assured and on the national framework, they are given a high status, and there is the potential for 'stacking' micro-credentials together to go towards a qualification. Having qualifications and micro-credentials all on the same framework, and all assured by the same company, provides stability and assurance to industry that these micro-credentials are suitable and have value.



The potential benefits of a digital badge come in three forms: the security, validity, and the sharing of the badge. By being able to share the digital badge on social media including the ability to embed hyperlinks, makes badges a useful way to showcase the owner's skill set and competency (ILO, 2023). While each digital badge company is different, what sets some apart is the security built into their credentials, including the transparency of blockchain and other security methods to ensure that badges cannot be duplicated or faked - ensuring the traceability of the badge, and that workers' training and skills records can be relied on. The validity of the badge is very dependent not on the credentialing company, but the company issuing the credential, 'assuring' the quality of the training and of the worker receiving the badge to be able to utilise the skills listed.

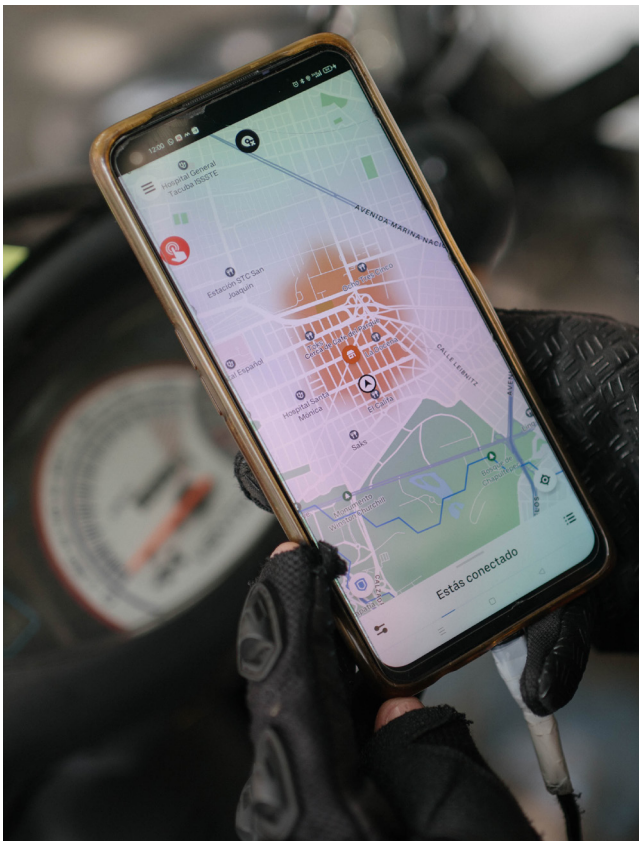
Whilst digital credentials are useful in some industries and some workforces, with the platform-based economy the usefulness of digital credentialing is dependent on the platform itself - particularly if it allows workers to showcase their badges and skills on the platform. This is dependent on the platform's reputation which can underpin or reduce the value of credentials for job and career signalling purposes (Wood, Graham, Lehdonvirta, & Hjorth, 2019). In a further example of the impact of reputation, a study (Grech, Sood, & Ariño, 2021) established that learners prefer blockchain credentials from professional and non-formal institutions and the TVET sector to those from higher education institutions (Grech, Sood, & Ariño, 2021).

In an article analysing the profiles of workers on the Upwork platform two major implications for workers were discovered. Firstly, the value of certifications and badges provides employers with a valuable third-party validation and verification of skills (Bang, 2019). Secondly, once Upwork allowed validation on their platforms, it quickly established the possession of certifications and credentials as a requirement for employment, driving (by implication) those without to obtain the now required certificates and certifications (Bang, 2019).

Accessibility of Micro and Digital Credentials

Ensuring that micro-credentials are accessible to workers and learners participating in the platform-based gig economy to upskill/reskill is essential. However, there are several factors which diminish the probability of this occurring.

One of the most important questions being raised is around the cost of a micro-credential: who should pay for learners to undertake training? One element of this comes down to the employment status of the workers, if they are not employed by the platforms, is there any responsibility for the platforms to provide benefits? With paid credentials this highlights the changing of the economic risks moving from the employer to the worker (Wood, Graham, Lehdonvirta, & Hjorth, 2019). In a 2022 article by Behera & Gaur it was argued that while it is a large investment for businesses to provide micro-credentials and other learning for gig workers, the benefits of doing so include deeper skillsets and engagement which are of considerable benefit to employers (Behera & Gaur, 2022).



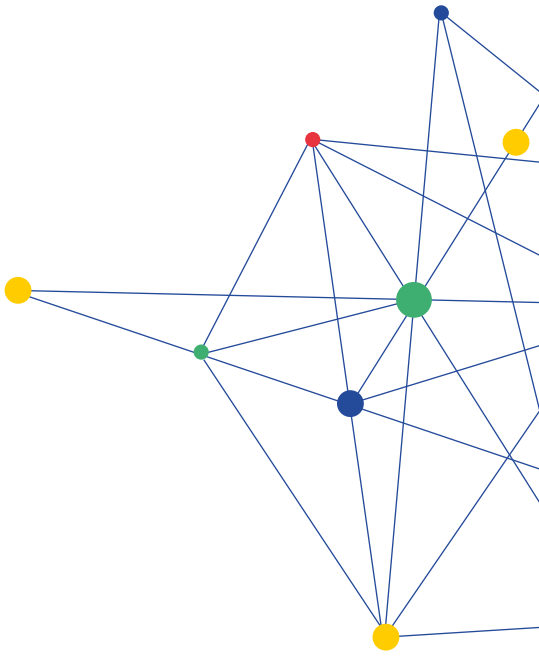
If the **employer** does not wish to pay for training, it would be in their interests to, as a minimum, **pay or support their workers to showcase their skills/credentials** on the platform as they become more attractive to clients looking to **hire them from the platform**
(Behera & Gaur, 2022)

Digital credentials' portability remains one of their most contentious issues. For example, if a learner receives a digital badge via a third-party provider such as Credly or Accredible, the learner 'owns' the badge, rather than the provider/employer. It is their badge on their account/wallet, and it cannot be removed from them. This means that the learner can showcase the badge wherever and whenever they want – on social media, in their CV, or an email signature – whilst also being able to protect and future-proof their credential, in many cases using blockchain.

As a counter to this approach, Uber for instance, allow their customers to 'issue' a compliment to a driver in the form of a digital badge, these range from 'Excellent Service' to 'Great Conversation'. Any customer can give a driver a digital badge when rating their driver at the end of their journey (Uber, n.d.). The issue with this type of badging is that it comes from a customer on Uber and is exclusively available on the Uber app and on the drivers' account. It cannot be removed and showcased elsewhere and belongs to Uber rather than to the worker. It is useful for the worker if they are staying on the platform, but they will not be able to share or showcase it off the Uber platform.

Musa, a social enterprise company based in Peru with operations also in Chile and Mexico, has introduced an innovative approach to delivering micro-learning to organizations with over 1,000 staff or beneficiaries. They leverage the popular messaging app WhatsApp to provide accessible and convenient training, as a large proportion of their audience is already "digital enough". Musa's decision to use WhatsApp is driven by the availability of mobile phones over computers in the region and because WhatsApp is widely used in Latin America, making it a familiar tool for learners. In addition, using WhatsApp does not require user data in the region, making it more accessible for learners (Li, 2023).

Musa leverages micro-learning to enable flexible upskilling and reskilling, tailored to individual or employer needs. The curriculum consists of 15-minute modules, with the number of modules depending on the client's learning needs. WhatsApp is also used for assessments, and clients can request auto-generated certificates. Like any LMS, organizations can track student progress. What sets Musa apart is its WhatsApp delivery channel and unique methodology (Li, 2023).



In a study by UNESCO, it is argued that credentialing is the key to the TVET sector keeping their promises around improving the impact of this training and removing impairments. (Dawe, 2020)

It's argued that credentialing skills down to a granular level, allowing for smaller chunks of learning, has an immediate value to employers, with the added benefit that the credentials can be (in certain jurisdictions) stacked towards a qualification (Dawe, 2020). One of the biggest risks, especially with digital credentials, is that they are only available to those who have the technology to use them, in terms of a smart phone or computer and reliable internet access. Access to these tends to concentrate in cities, with lower adoption by rural youth and women in particular (Dawe, 2020). Tied to this is also the different methods of learning and the time in which someone has to dedicate to learning. For certain disadvantaged groups, women in particular, there are more difficult circumstances which to

Internet accessibility and usability, as well as device access itself are further considerations (Heeks, et al., 2021). In many developing countries, the cost of mobile data and, often, phones themselves, is prohibitive, reducing access to the internet for many. There are some global platforms, however, who do offer help. For instance, the Coursera app has an offline mode and learners can download text versions instead of video. The Kiron app similarly allows for the use of text versions over video and provides access to lower quality video downloads or as audio (van der Hijden & Martin, 2023).

Deep Dive: Case Studies

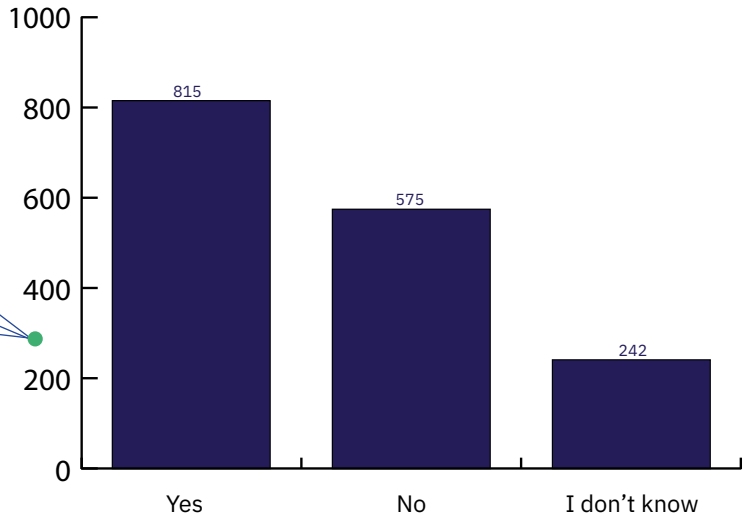
Focusing our efforts on four case studies – India, Kenya, Mexico, and Vietnam – allowed us to delve deeper into the national policies, their impacts on gig workers, and the way in which platforms manage digital credentialing. The case studies were developed from a range of desk-based research, interviews, and surveys.

General Findings & Analysis

Prior to the analysis of the individual case studies below, there are additional survey responses to the country-specific ones which will be explored here in an overarching review of how gig workers perceive and use, micro and digital credentials rather than in a country-by-country format. There is a bias in the statistics erring towards cloud workers due to the platforms that were engaged with, however, due to the number of participants across the four countries, it still provides useful data as a beginning to this area of research, for which this report is the first of its kind.

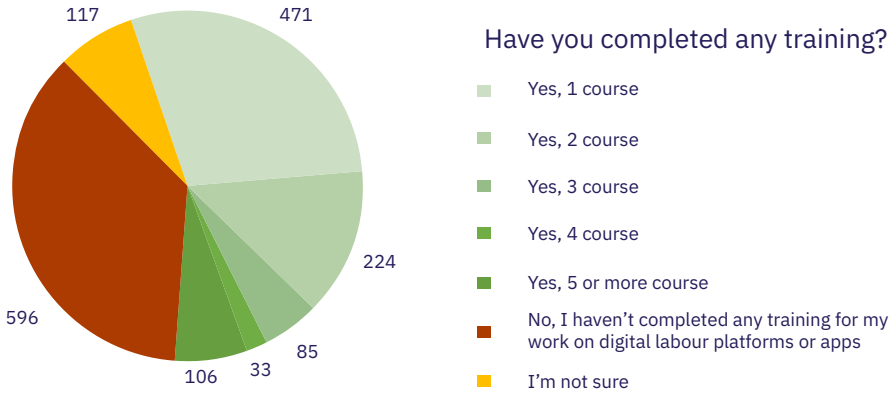
Across the surveys and interviews it was discovered that many platforms either train their workers directly or provide them access to training providers/learner management systems, to upskill. As these statistics represent, training is not ubiquitous across all platforms and this comes back to the topic of value, and whether it is worth a platforms' time and money to train their workers. There are arguments on both sides as whilst having the particular platform create or provide training could be useful to workers upskilling and being able to best utilise the platform, many platforms do not allow their workers to transfer the credentials earned on their platform to another so undertaking training outside of the platform could also be of more use and value to the worker. The potential of broader industry collaboration on a wider industry set of training, such as how in the technology sector, Microsoft creates their training, could be one way forward, reducing the reliance of the worker on one particular platform. Governmental policy and regulation and the potential for TVET colleges to also provide training out of the workspace are other potential solutions.

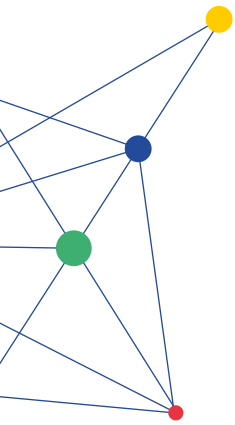
Do any of the digital labour platforms or apps that you use offer you learning opportunities

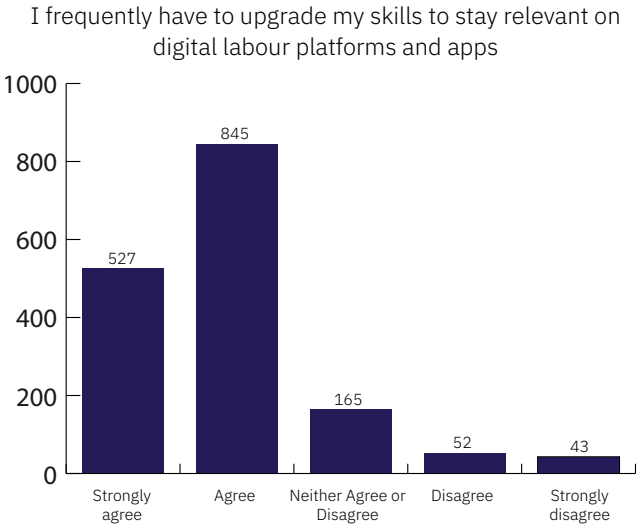


It is interesting to see the split between not only those who have and haven't completed a training course, but the number as well. More than half of all respondents had completed at least one course. This study would also recommend that future research in this space will take these initial findings and delve deeper into workers' responses, especially around the motivation of those who have taken multiple courses to see if there are any patterns that can be utilised to encourage more workers to take multiples courses, where it would be useful. In addition to this, we would further recommend future research into those workers who haven't taken any courses, to understand the deeper socio-economic and cultural reasons for this. In the case studies below, we have begun to unpack this, with questions around the online-only function for some micro-credentials, the cost of internet and technology, and, in some countries, the perceptions around women and their place in education and work.

When asked about their own perception towards upskilling, 1372 respondents of the 1632 felt that they have to upgrade their skills to remain relevant on platforms. However, only 919 in the earlier question responded that they have completed a course / training to support their work. This points to the prevailing understanding around the importance of upskilling and the need to acquire new knowledge, skills and experiences. It is unclear if the avenues for upskilling are commonly known or what the other 453 workers do to help their work on the platform, or what they would consider upgrading. To help learners / workers understand this better, it is recommended that further research into this field may be undertaken, in particular to identify the skillsets for which learners use digital learning and other common sources for upskilling.

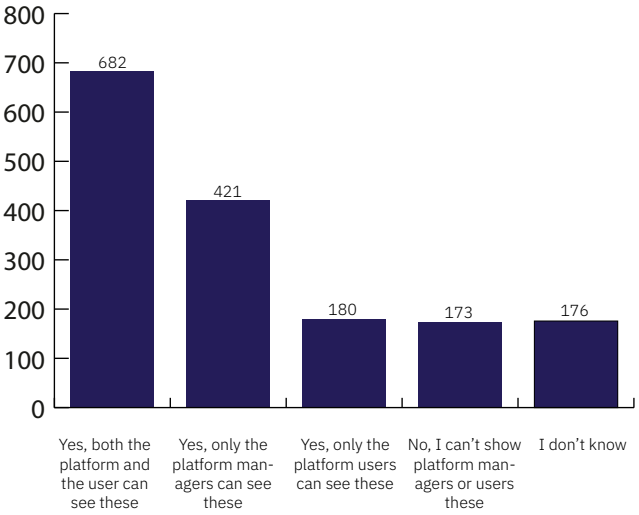






For this final question, workers were surveyed to ascertain to what degree digital credentials were being utilised by platforms. To note here, the focus was on educational achievements rather than any type of achievement due to the potential of ride-hailing applications who can provide badges to their workers for number of trips taken etc, but which aren't transferrable off-app. It is particularly encouraging that 862 out of the 1632 surveyed were able to share their educational achievements on the app for customers to see. These results however do show that there is a way to go with having more platforms providing the opportunity to allow workers to showcase their achievements. In addition, for those 862 who can share their educational achievements on the app for customers to see, we would encourage further research into whether this showcasing of achievement has been wholly beneficial, or, if it has led to a further segregation between those who have achievements to showcase, and those who do not.

Can you show your educational achievements through any profiles you have on digital labour platforms or apps?

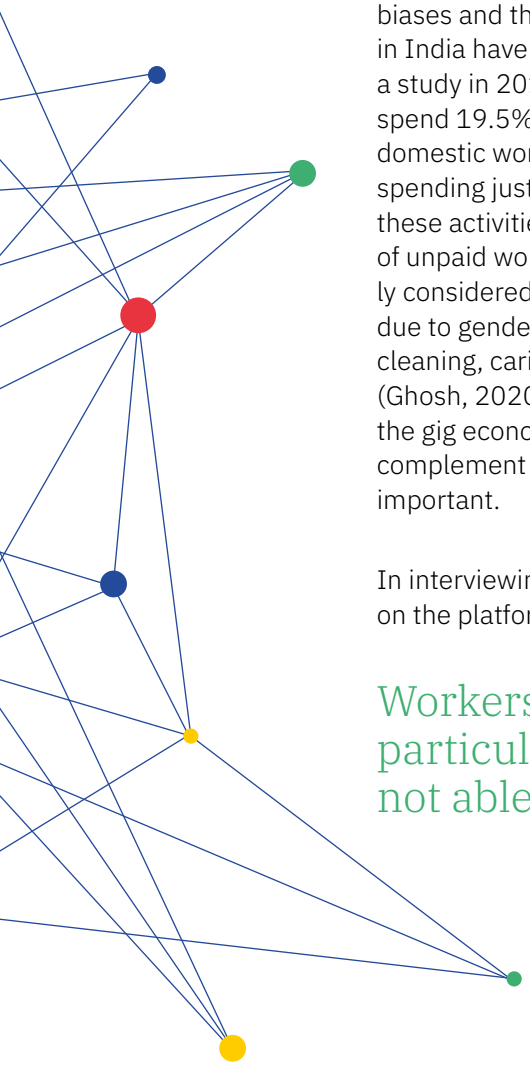


Overall, workers who participated in this study appeared to value vocational training or skilling for their gig work. Due to the methods of data collection available in a shorter period of time there is a bias towards cloud-based workers with 1038 cloud-based workers surveyed and 594 who had some element of location-based work, in addition to some cloud-based. In comparing the results between location-based and purely cloud-based there was consistency across the results, for instance when asking if they need to upgrade their skills to stay relevant, 83% (867) of cloud-based workers agreed, with 85% (505) of location-based agreed. Asking workers who have undertaken micro-credentials if they were valued by their digital learning provider(s), 79% of cloud-based workers agreed and 81% of location-based workers agreed. Further research to understand the particular requirements of different occupations or types of platform job would be beneficial to understand what types of skill training is most useful for different types of occupations and how different types of workers are valued and what skill improvements mean in this context.

India

India's emphasis on digitalisation has triggered the growth of platform-based gig economy. It has been estimated that in 2020-2021 there were 7.7 million gig workers in India, a number which is expected to reach 23.5 million workers by 2030. Gig workers may then comprise about 4.1% of the total workforce (Niti Aayog, 2022). The demographics of the gig labour force is unclear, though as the general participation rates of women and people with disabilities in are low at 16 to 23% for women and 36% for people with disabilities, these are likely to be correspondingly low (Niti Aayog, 2022).

One of the main challenges in enabling women's access to the platform-based gig economy in India is their access to digital technology. A 2019 report reported that only 16% of women in India used the internet on a mobile device (Kasliwal, 2020). The government initiative 'Digital India' has been developed to provide internet access to everyone in India. However, digital access and digital literacy remains a barrier, especially for women, in part due to social-cultural factors including restricted access to mobile phones or using the internet in general (Kasliwal, 2020).



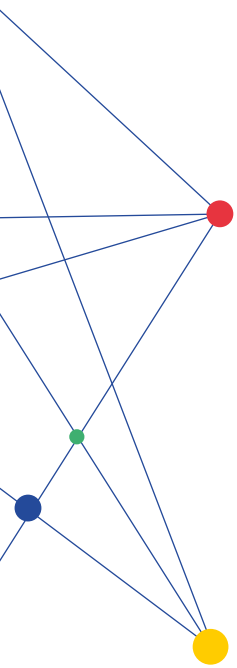
In a separate 2020 study, cultural expectations around women's participation in work were explored in the food delivery and cab driving sectors. In both sectors there is a greater interaction with strangers than in some other industries, which is not considered dignified for a woman (Ghosh, 2020). There are, however, companies such as Even Cargo and Heydeedee, who facilitate the entry into and employment of women (Ghosh, 2020). Even Cargo, for instance, exclusively employ women on their platform, training them on a two-wheeler, providing them soft skills, self-defence, and logistics training (Even Cargo, n.d.). The provision of soft-skills training is particularly important as it gives women the customer management skills they need to succeed (Ghosh, 2020). The factors that can affect women working in spaces that are usually considered in the male domain stem from gender norm biases and the amount of time that women in India have to undertake paid work. From a study in 2019 women in India on average spend 19.5% of their time in either unpaid domestic work or unpaid care, with men spending just 2.5% of a 24-hour period on these activities (Ghosh, 2020). The types of unpaid work which women do are socially considered as women's responsibilities due to gender norms, including cooking, cleaning, caring for the elderly and the sick (Ghosh, 2020). Opportunities to engage in the gig economy at times that suit them to complement their non-paying work is hugely important.

In interviewing the India-based researchers on the platform economy, one of the issues that they identified was that platform-based workers face a lack of portability in their work/skills portfolio.

> Workers get locked into a particular platform and are not able to migrate their portfolio from one to another, leading to a lack of portability/ transferability of their skillset (Khurana & Dharap, 2023).

The researchers see the value of micro and digital credentials as long as they can be transferred from platform to platform with a verifiable credentialing system in place, if it can be backed by a certified body it will give the workers more choices and enable them to help with reskilling and upskilling. The opportunity to transfer achievements and learning across platforms is an essential element for women to be able to challenge segregation of them into different sectors/ platforms, enabling them to have improved social and economic mobility, through the transfer of developed skills. The difficulty with the reliance on achievements/skills earned within a platform also lends to the argument for the opportunities of workers to undertake learning outside of the individual platforms so that the ownership of these achievements and skills will be the workers own. With growth in ownership of smartphones and internet penetration, they believe that more women will be able to take jobs in the digital labour economy. In India the gig economy is more widespread in urban centres which skews the discussion as those in rural areas where internet connection is weaker and socio-cultural norms are stronger, will preclude more women from being able to access the gig economy in these areas.

The Indian government is currently working towards a digital ecosystem: a digital public infrastructure allowing furthering inter-operability of skilling credentials. Gig and platform workers are likely to benefit as a result of this ecosystem as it should help them to be able to transfer their skills from one platform to another platform. The Digital Ecosystem for Skilling and Livelihood (DESH-Stack eportal) "aims to empower citizens to skill, reskill or upskill through on-line training. It will also provide API-based trusted skill credentials, payment and discovery layers to find relevant jobs and entrepreneurial opportunities" (Press Information Bureau - Government of India, 2022).



The Indian government is also very aware of the importance of vocational training opportunities for its population. In its 2020 Budget, funds were made available for skills development through the introduction of relevant courses and a focus on improving the skill development opportunities available to workers via the National Skill Development Agency/Corporation (NSDC) (Agwarwal & Bose, 2020). The NSDC with e-Skill India provide a number of free and paid-for courses on their platform to increase digital literacy, along with technical training ranging from electrical to domestic data entry in different languages. Some courses (both free and paid) have certification available as well to be able to showcase their achievement (NSDC India, n.d.) (E-Skill India, n.d.).

A study focusing on the future of the gig economy in India recommended that gig workers upgrade their skillsets with certification and training in a regulated industry (Roy & Shrivastava, 2020). The importance of creating skills training systems, especially with regards to improving the mobility of women in India, is seen as vital to enabling a supportive learning ecosystem for women to help them move into better employment opportunities within the gig economy (Chaudhary, 2021).

In a study by Fairwork on Indian cloud workers they identified that transversal skills (including communication and organisational skills) were particularly valued and were the overall focus of skills-learning during their time at work with over 80% of the respondents noting that they were developed at least weekly (Fairwork, 2021).

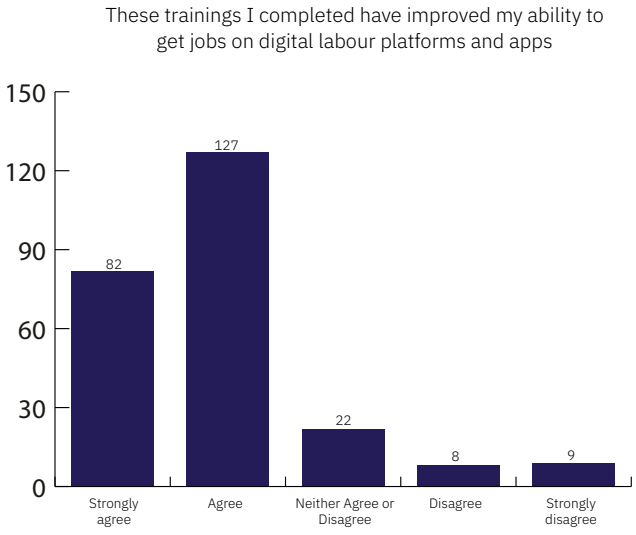
India's National Council for Vocational Education & Training (NCVET) published their guidelines for development, approval, and usage of micro credentials in March 2023. Their definition sets out the requirement that micro-credentials be more narrowly focused than a qualification or traditional degree but that they can be either broad (such as Machine Learning) or specific in focus (such as Machine learning for Predictive Analytics) (National Council for Vocational Education & Training (NCVET), 2023). There is an oblique reference to the gig economy, where they state that 'new-age enterprising roles' require continuous upskilling and cross sectoral skills to enable a person to succeed (National Council for Vocational Education & Training (NCVET), 2023). This is followed by a statement that micro-credentials need to be relevant to and demanded by industry; and finally, that credentials must be defined by the use of performance criteria, in addition to an assessment strategy (National Council for Vocational Education & Training (NCVET), 2023).

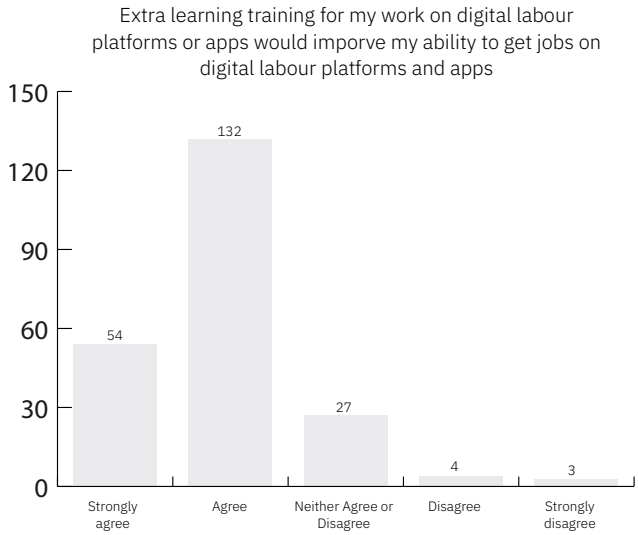
In addition to digital credentials, Recognition of Prior Learning (RPL) certificates are regarded by some researchers as critical to the gig-economy. A large number of people in the gig economy have learned their skills informally, but with some employers, and on some platforms, are able to attain a credential via RPL to showcase their achievements and skillsets in a formal manner; this being the best way to get more work (Ghosh, 2020).

In our survey with gig workers working in India, 248 of those surveyed had undertaken training for their gig work and 220 hadn't. Each group were asked about their experiences with micro-credentials and what each group would feel would be useful for their careers.

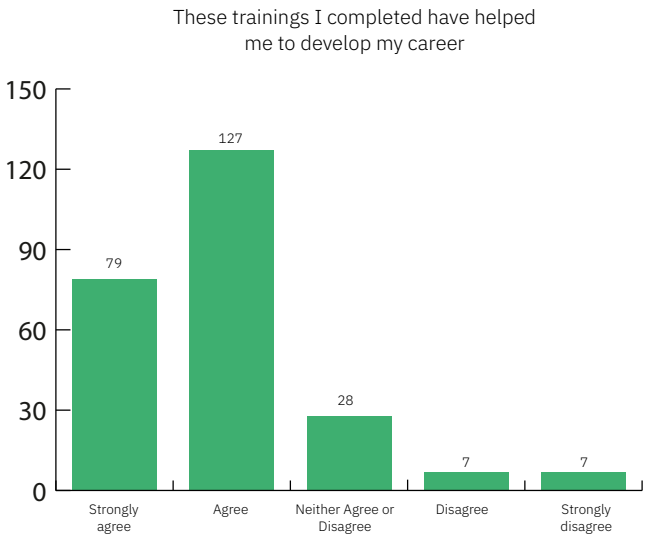
To determine if the workers who took training were undertaking training which falls into this research's working definition of micro-credentials, they were asked if the training that they took featured assessment and asked how long the training was (to determine if it was of qualification size). 81% of the respondents had taken courses which included assessments and only 28 respondents had training which took more than six months, based on those figures, most of the respondents were undertaking micro-credentials, according to this research's definition.

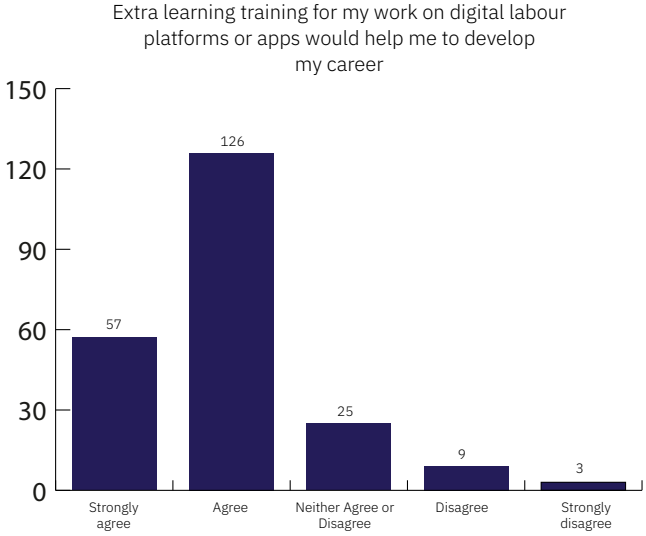
84% (209 out of 248) of the survey respondents who have taken what this study defines as a micro-credential agreed that taking micro-credentials had helped them get jobs on their platform(s), with only 17 disagreeing in some way and 22 neither agreeing or disagreeing. In comparison, 84.5% (186 out of the 220) who had not completed a micro-credential agreed that if they did take extra training for their work, it would improve their ability to get jobs. The near parity between both questions surveyed is encouraging as it shows that those who haven't yet taken training see the value of it.



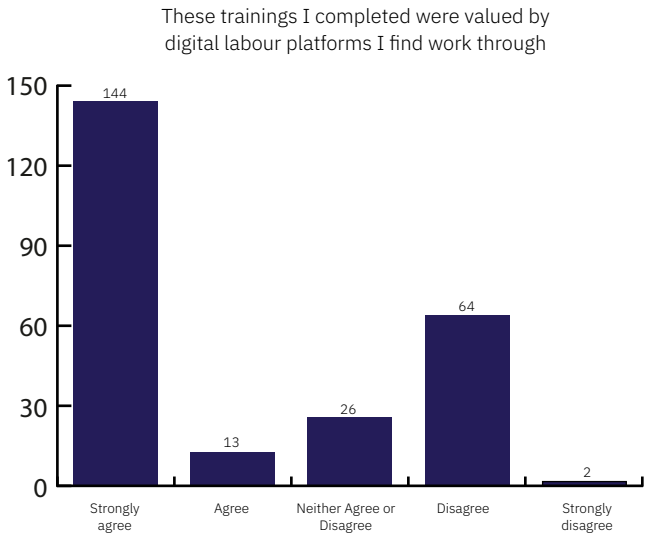


Additionally, 83% (206 out of 248) who had taken micro-credentials reported that they had helped to develop their career. Comparing the response here between men and women, 80% (56 out of 70) of women surveyed agreed that they helped develop their career, and 84% (150 out of 177) of men. Whilst the data set is small, it's interesting to note that in this question, fewer disagreed with the statement, whilst more were unsure and neither agreed or disagreed. In the other question for those who hadn't taken micro-credentials yet, again it was very similar to the first question with **83% (183 out of 220) agreeing that extra training would help them develop their career.** These numbers are small so it is not possible to draw strong conclusions but it is worth noting that the trend indicated is positive with most seeing a connection between accredited training and success in obtaining jobs on digital labour platforms.





83% (208 out of 249) said that the training was valued by the platforms that they worked for. That the platforms encourage training is positive as this could inspire those workers who haven't undertaken training, to do so, and encourage those who have, to continue to do so. 81% (57 out of 70) of women agreed to some degree whilst 84% (151 out of 178) of men also agreed, which, comparing with the question above is relatively comparable.



Kenya

Kenya currently does not have an official policy on micro-credentials. The Kenyan National Qualifications Authority (KNQA) when asked about this, however, did explain that they have policies on recognition of prior learning and on competency-based education and training which they consider to be relevant. When asked what they believe will be most needed to make the most out of micro-credentials in the gig economy in Kenya they suggested the following: a national policy framework to create coherence and harmony, good will from the government and employers to recognise the policy and micro-credentials themselves, and publicity to make parties aware of their creation. They argued that those who have skills and competencies acquired from the informal and non-formal sector will have more difficulty in accessing gig work and micro-credentials than others as they lacked recognition (Bulimo, 2023).

The Lynk platform is focused on improving job prospects and improved pay for women artisans (Shah, Maina, & Kipkoech, 2021). Part of the mission of the platform was to help women increase their skills in sectors which primarily had been male-focused industries (where for instance only 5% were women) including carpentry (Shah, Maina, & Kipkoech, 2021). A Lynk survey discovered that women made up 38.4% of the platform but earned only 15.9% of the income. This was primarily due to the sectors in which the women were working - which weren't paying as much or as popular as other industries on Lynk. The analysis identified that women made up 84% of care-related trades including beauty, cleaning, and hospitality which only represented 4-8% of jobs on the platform, compared to installation, maintenance, and repair jobs which in a two year period represented 43% of all jobs on the platform, and 82% of the revenue (Lynk, 2020). To help to change this, Lynk provided significantly more help to their 'Pros' by enabling them to create a digital identity via the Lynk app. This allows them to include data on jobs they have completed and to improve their visibility to employers. Lynk also provides industry-specific training and e-learning material. While these are positive

steps, there is more work to be done with regards to addressing gender equity issues including providing the opportunities for women to develop the marketability of their skill sets, and in closing the gender pay gap, this also requires a re-evaluation of the value of the work that women typically do as well as finding methods to better assist women in taking part in traditionally male-only areas of work.

The Kazi App is a Kenyan-based platform which creates an environment where workers can market themselves, to a variety of employers with diverse needs. It is made up of two apps, one for clients, one for workers. The app is focused on blue collar location-based jobs in the gig economy including for example, cleaners, mechanics, and plumbers. Whilst Kazi do not offer micro-credentials presently, they do share communication and personal effectiveness tips to their team via the worker app, text messaging, and social media. This is driven by the belief that workers are not trained enough in these skills.

Kazi believe that micro-credentials in communication and 'soft' skills would be particularly beneficial to the workers and to the platform as workers with stronger communication skills increase the value of the worker to customers
(Makalo, 2023).

They also believe that workers who wanted to join their platform with micro-credentials would be more attractive to the platform (Makalo, 2023). Kazi do offer a type of digital credential. On each user's profile there is a link to the digital CV of the worker; the worker can share this on social media and it's a way for potential clients to review the workers achievements, skills, recent work and their location to help clients identify the most appropriate worker for the job (Makalo, 2023).

The Kenya National Federation of Jua Kali Associations (KNFJKA) is an umbrella national organisation established in 1992, representing over six million skilled artisans and craftspersons in the informal sector. Their main role is the recognition of prior learning (RPL). The federation's members tend not to have gone through structured, formal training, primarily acquiring competency on the job. As a consequence, they do not have certification for their knowledge and skills. This puts them at a disadvantage with those customers who require assurance that workers have the competences they need. To assist with the accreditation issue, the KNFJKA run assessment centres built around practical works sites where workers are assessed against common skillsets to assessments to check their skills and if they achieve the assessment the KNFJKA recommends to the relevant awarding body and the worker will receive certification in the relevant course/qualification (Wambua, 2023). For those workers who do not achieve, the KNFJKA will recommend the worker undertakes skills gap training to receive enough training to upskill and achieve the assessment (Wambua, 2023).

When asked about micro-credentials they said that there wasn't any common understanding or consensus in Kenya on the subject. They understood and appreciated the potential value that micro-credentials could have, especially in their areas of working where RPL and upskilling are their main areas, as their workers do not particularly want large qualifications, they just want to be able to be recognised for the skills that they have to help them to be able to win work, however currently Kenya's framework does not recognise micro-credentials (Wambua, 2023). One of the biggest groups they believe are currently finding it difficult to access the education system and could use micro-credentials if established are refugees. There are particularly large numbers of refugees from Somalia and South Sudan who have challenges and due to their status may not be able to join the formal education sector. If these refugees are given the option to do non-recognised credentials from, for instance, non-governmental organisations, these aren't recognised by government so

their use is negligible making it difficult to be able to work in, or establish themselves in that space.

> The potential therefore for a cohesive micro-credential policy and recognition of these types of short courses could be hugely significant for these affected groups (Wambaua, 2023).

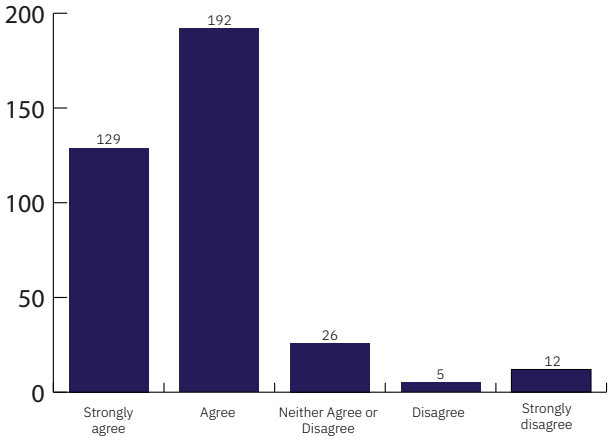
In Kenya there are a number of examples of platforms providing training to their workers, both for the development of the workers (and the ability to increase their income or be able to find a formal job in time if they wish), but also to the benefit of the platform, by having more skilled workers, it enhances their own standing and profitability as well as increased performance and loyalty from the worker (Wasilwa & Maangi, 2020) (Hunt, et al., 2019). An example of this includes the Fundis App where artisans are trained on skills to improve their communication and social media skills, helping both the worker and the platform (Wasilwa & Maangi, 2020).

The survey with Kenyan gig workers spoke to those who had undertaken training for their gig work, and those who hadn't, to understand more about the relationship between micro-credentials and their careers, and what each group would feel would be useful for their careers.

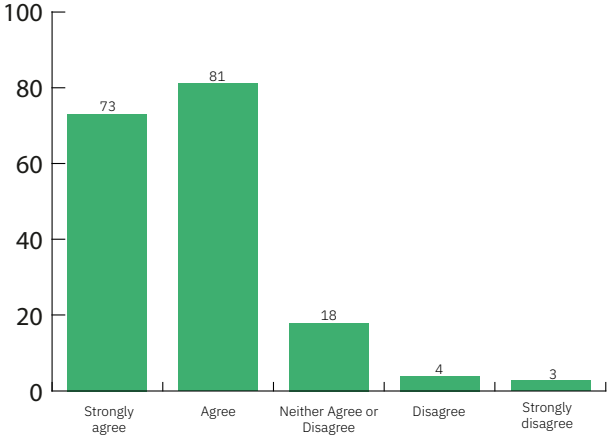
To determine if the workers who took training were undertaking the working definition of micro-credentials, they were asked if the training that they took featured assessment and asked how long the training was (to determine if it was of qualification size). 93% of the respondents did take courses which included assessments and only 17 respondents had training which took more than six months, based on those figures, the majority of the respondents were undertaking, what this study considers, micro-credentials.

In this first question, **88% (321 out of 364) believed that undertaking micro-credentials improved their ability to get jobs on platforms.** From the research and case studies within Kenya it is encouraging to see this level of agreement, whilst also noting that this is not a representative sample to take any firm conclusions. From those who haven't yet undertaken a micro-credential, 86% (154 out of 179) believe that taking them would improve their ability to get jobs on labour platforms, such a strong positive reaction to the potential of training is really valuable. Further research now needs to understand what is required so that the 86% who do believe training would help, can access it.

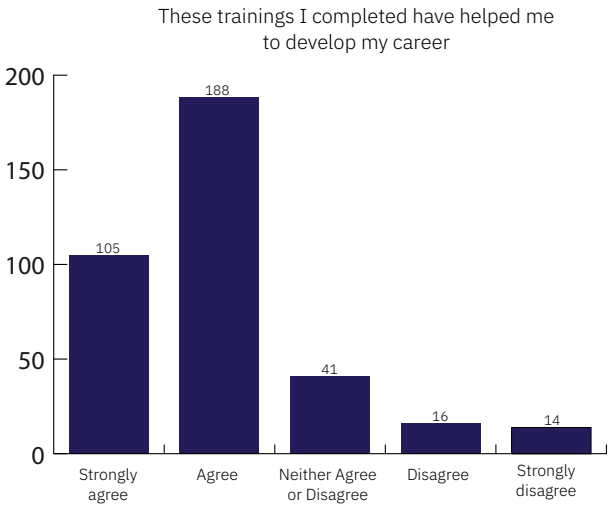
These trainings I completed have improved my ability to get jobs on digital labour platforms and apps

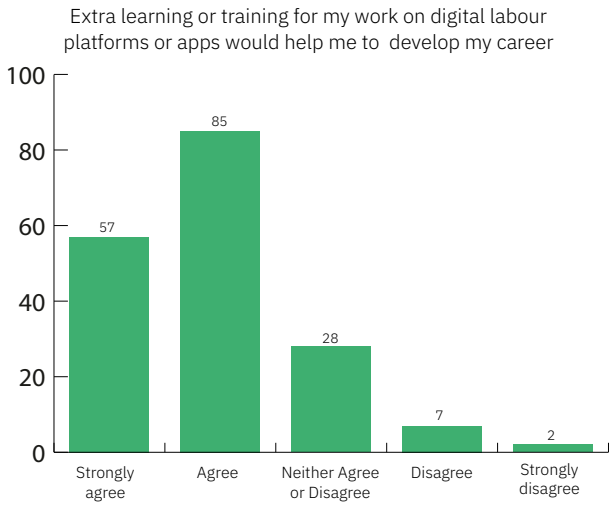


Extra learning or training for my work on digital labour platforms or apps would improve my ability to get jobs on digital labour platforms and apps

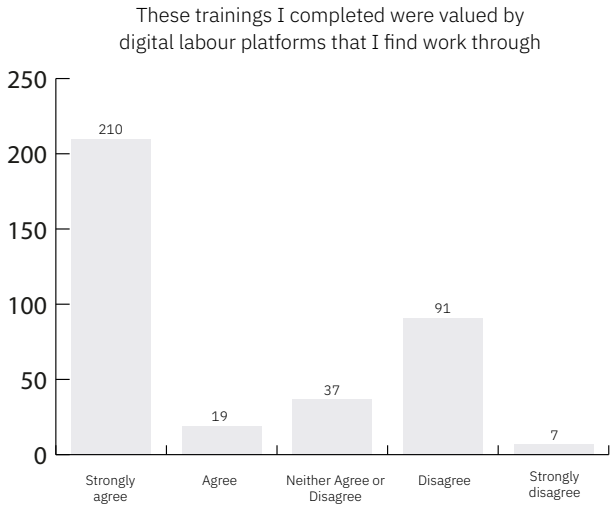


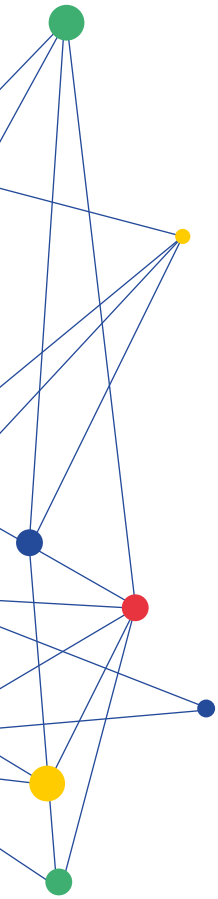
It's interesting to note in these questions, how there are slightly fewer (though still with a majority of positive agreement) positive responses in relation to whether the micro-credentials have helped to develop their career, in relation to whether it's helped them in their current career. Using micro-credentials for upskilling and social mobility is a key aspect. It is particularly interesting that the slight downspin is the same in both those who have taken micro-credentials and those who haven't yet, implying that the perception in both groups is slightly less positive towards career development, compared to continuing employment. When comparing whether micro-credentials have helped to develop their career via gender, 79% (110 out of 139) of women agreed, similar to the 81% (183 out of 225) of men who agreed.





In this final question, exclusively for those who have taken micro-credentials, they are again strong results, **82% (301 out of 364) agreeing to some degree that their micro-credentials were valued by digital labour platforms.** This is in keeping with the rest of the research that this study has seen for Kenya, where platforms seem particularly invested in training. Looking via gender, 86% (120 out of 139) of women agreed that their trainings were valued, 6% higher than for men at 80% (181 out of 224).





Whilst Kenya does not have its own micro-credential policy, in March 2023 the South African based Council on Higher Education (CHE) published a communiqué about a wider Southern Africa policy taking root (Mashininga, 2023). CHE are undertaking research into micro-credentials with the intended result being a broad framework for Southern Africa. This will include a roadmap for individual countries in the region to reference the development of their own national policies, maintaining cohesion and mutual recognition through the Southern African framework (Green, 2023). The communiqué covers the potential issues to be considered around micro-credentials, along with the barriers that still exist, namely limited access to devices and internet (Green, 2023). It is encouraging that questions around equity issues are being raised in relation to micro-credentials so that Southern Africa in general as well as the individual countries within, can take into consideration these into account when developing policies and strategies to ensure that everyone will be able to access and benefit from micro-credentials.

Mexico

Whilst micro-credentials or "microcredenciales" as they're known, feature in Mexico, there is currently no country-wide policy, nor official definition of them.

Homely is a location-based platform and is the largest platform in Mexico for hiring cleaning services. Melina Cruz, the current Head of Growth and Expansion spoke to us about the platform and the training associated with it. In 2022 they formed a relationship with Platzi, an online education service provider to give their cleaners (known as keepers) access to three programmes: learning English; how to sell online; and personal effectiveness which includes time management, productivity and creating positive habits (Platzi, n.d.) (Cruz, 2023).

Learning English won't help the keepers in their roles, but it does help them with their communication with customers. Previously, when a foreign customer spoke to the keeper in English, the keeper could become frustrated at not being able to reply or communicate effectively. Being given the opportunity to learn English has helped to motivate keepers who are now at least able to at least say that they can't speak English in English or be able to converse with customers to the limit of their English language skills (Cruz, 2023).

A set of core skills were chosen by Homely as they need keepers who are good at dealing with clients who get frustrated as it's something that Homely can't control. The keeper needs to have resilience - not let bad behaviour from the client pass but be able to have the confidence to end the service in a polite way and leave instead of getting angry.

> Homely also indicated that should workers with a micro-credential in a relevant skill set approach them for employment, it would make them more attractive as employees, because they can already use skills that will help them thrive in the workplace (Cruz, 2023).

Homely have used other less successful methods of training. Four years ago, they created a week of induction training for new cleaners, but this was not popular amongst participants as their focus was on earning an income as soon as possible. They could not afford to have a 'free' week of learning and development. In response to this Homely implemented job shadowing, which meant that workers were earning money from the beginning and learning not just cleaning skills but being shown the best way to communicate with and manage clients (Cruz, 2023). By changing the training to both on-the-job training and utilising short online education programmes, the learning is still beneficial, manageable, and does not impact

negatively on the workers with potential lost income, improving their perception of further learning.

There are two sets of vulnerable groups which Cruz identified in relation to the wider gig economy mentioned. The first are women, they make up 90% of Homely's workforce (which they have done in part to try and help upskill women to be able to support themselves instead of having to rely on others) and in many cases it's the first time that they've had a job outside of their families and homes. The culture shock can be intense, and learning to use a mobile phone for the purpose of work took many women time to get used to.

The second group - indigenous women and those from an ethnic minority background, often do not have the level of literacy in reading and digital skills required. This can make it a real challenge for them to access the platform economy. Homely see this as a set of structural and cascading issues: low access to education has a profound impact on literacy; indigenous workers can't set up a bank account because they do not have the initial deposit; and they do not have an internet enabled smartphone because they do not have money - because they can't get a job – and so on in a cycle of discrimination and deprivation. Micro-credentials have the potential to help but additional support is required to help give these vulnerable groups the opportunities to find work (Cruz, 2023).

During a conversation with Musa CEO Monica Ramos Li, she emphasised the significance of training in the gig economy, particularly for transferable skills like personal effectiveness or those related to Occupational Health and Safety (OHS) (the latter is often a compulsory element of training in many jurisdictions). She further explained that internal process training has no value outside the company and stressed the importance of the recognition of industry relevant courses in the formal learning system.

In addition to platforms utilising micro-credentials, universities are also building policies and frameworks. The university

> The Musa CEO highlighted the relevance of RPL (Recognition of Prior Learning) to acknowledge a learner's existing knowledge and skillset and facilitate their access to further formal learning. Ultimately therefore, the reputation of the company or provider awarding the credential determines its value for the worker outside the organization (Li, 2023).

Tecnológico de Monterrey, which comprises more than 35 campuses in the region has established their own micro-credential policy to strengthen lifelong learning. They define a micro-credential as having a high value in the labour market with a duration between 20-95 hours with three ways of being able to obtain them: accreditation of competences; training experiences linked to a study plan; training experiences independent of the study plan. They are also worth credits (Tecnológico de Monterrey). Tecnológico de Monterrey do not just include their own courses but also MicroMaster's awarded by the Massachusetts Institute of Technology (MIT) and Moocs (Massive open online course). Anything that is included however, is assured by the Tecnológico de Monterrey, having them act as a quality assuring third-party, ensuring that the quality, and thus the benefit to the learner is clear (Tecnológico de Monterrey).

IECA a training state institute in the Guanajuata state of Mexico focuses primarily on micro-credentials mostly for the private sector where they develop contextualised training for staff. While they do not offer digital credentials, they offer a paper-based certificate, but with more information than a 'standard' certificate. The certificate is certified by the education ministry of Mexico to showcase validity and on the back of each

certificate is details of what the learner has studied, along with the hours in training, to give, as with a digital badge, the details required by employers to understand the value of the certificate (Arroyo, 2023).

IECA started developing these types of courses after large manufacturing companies began moving to Mexico and were asking the government to help with training workers in the skillsets they needed.

> IECA began developing short courses, both in technical and core skills, and because of the majority were between 8- 32 hours of training, they are easier to update regularly to keep them relevant (Arroyo, 2023).

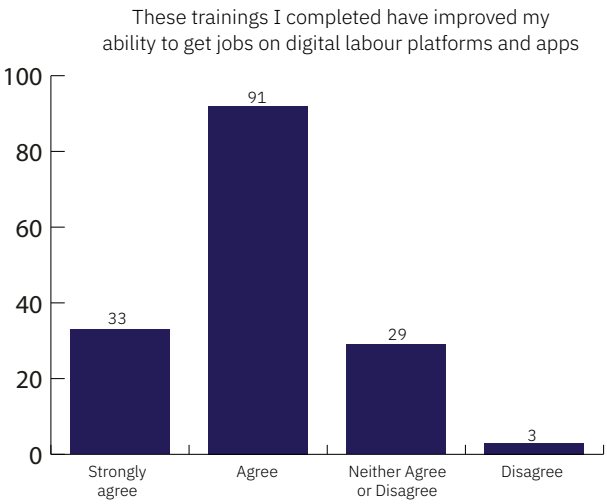
This is in contrast with most formal education where training content is not normally updated for 3 to 5 years (Arroyo, 2023).

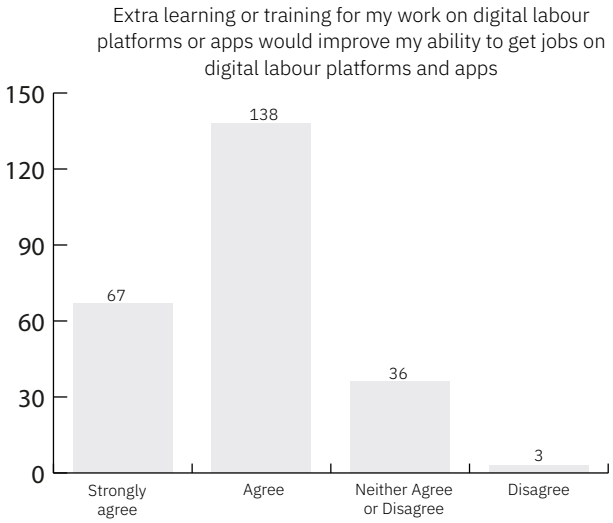
The central Mexican government have passed legislation to regulate ride-hailing platforms, mandating that all those workers who wish to work in that sector need to undertake training with IECA (as the only institute which can offer these services in Guanajuato state). The workers must complete an 18-hour course which incorporates both core skills and some technical skills including basic mechanical skills (e.g.: what to do if a battery dies, how to change a tyre, etc). After completing the course they can then apply for and receive a license which allows them to operate as a driver for a ride-hailing company (Arroyo, 2023).

The survey of Mexican gig workers spoke to both those who had undertaken training for their gig work, and to those who had not. The decision to talk to both sets was undertaken to allow the study to understand more about the relationship between micro-credentials and careers, and what each group would feel would enhance their career prospects.

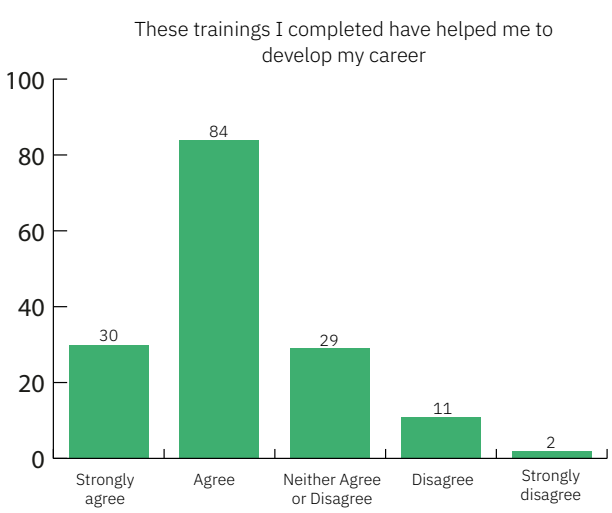
To determine if the workers who took training were undertaking the research's working definition of micro-credentials, they were asked if the training that they took featured assessment and asked how long the training was (to determine if it was of qualification size). 82% of the respondents took courses which included assessments and only nine respondents had training which took more than six months, based on those figures most of the respondents were undertaking micro-credentials as defined in this study.

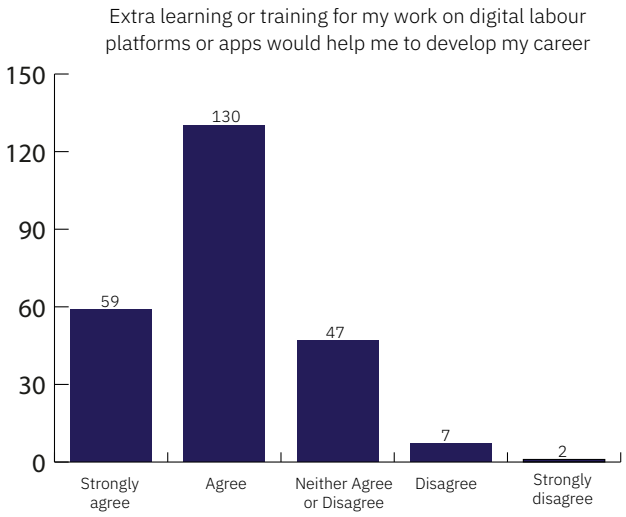
In these first survey questions there was a consensus from both groups that micro-credentials improved a worker's attractiveness to their respective platform(s) with very few disagreeing and less than a third neither agreeing or disagreeing. It is also worth noting that based on these figures, **the perception that additional micro-credentials could help someone's ability to get work on the platforms was even higher than for those who had undertaken micro-credentials.**



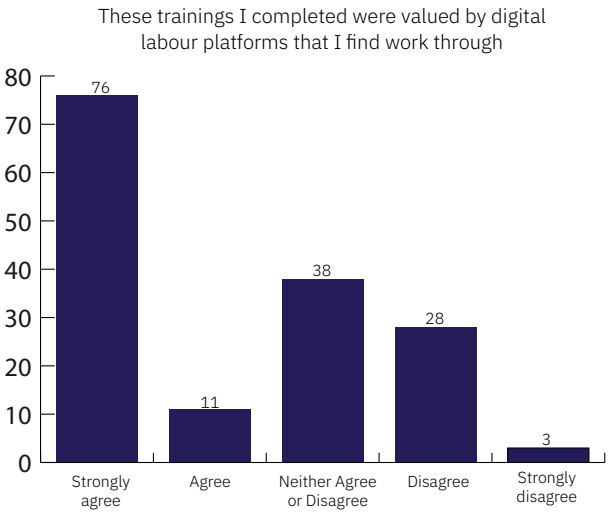


It is interesting to note that for these questions below, the number of strongly agree and agree is less than for the questions above, leading to the result that the micro-credentials are, in these instances at least, more useful and valuable for the platform-based gig economy than for other types of career. It's particularly interesting to compare the responses of women to men. Looking at responses to **whether micro-credentials had helped to develop their career by gender, 68% (41 out of 60) of women agreed to some degree whilst 75.5% (71 out of 94) of men agreed to some degree.**





This last question reinforces the first. **Not only did the micro-credentials which these workers undertook help them get jobs on their respective platform(s) but they were valued by the platform(s) themselves with 66% (104 out of 156) agreeing.** Looking at the gender split, 60% of women (36 out of 60) agreed they had value whilst 71% of men (67 out of 94) agreed.



Vietnam

Whilst there isn't yet a government policy on micro or digital credentials, there are countries who are partnering with, or suggesting partnering with Vietnam on the topic. The Australian government for instance recommended at the end of 2021, a partnership with Vietnam on micro-credentials (Department of Foreign Affairs and Trade, 2021). The report put forward a number of proposals on the topic of micro-credentials. A core theme of all of them was the proposal that Australian institutions create micro-credentials for Vietnamese learners. These include a micro-credential in hospitality and tourism leadership primarily focused on female supervisors and managers (Department of Foreign Affairs and Trade, 2021). In addition, the report highlights the support Australia has provided Vietnam in developing an industry focused TVET system (Department of Foreign Affairs and Trade, 2021). The value in both is that with international partners supporting the Vietnamese government, especially the TVET sector, will help multiple actors understand the potential benefits of micro and digital credentials which will promote their development at a national level.

It was important to understand more on this topic from a TVET sector perspective, hence an interview with the Vice Rector of VCMI at the College of Machinery and Irrigation in Dong Nai was requested. Whilst they had heard of micro-credentials via the ILO they had not fully internalised their purpose or benefits.

> However after explaining the working definition of micro-credentials from this study, it transpired that they did offer courses which met the description, calling them short (Đông, 2023).

This illustrates that one of the core issues with micro-credential research is there are so many different names for micro-credentials and people believe that micro-credentials are something 'new' when, only the name (and association with digital badging) is new.

At the College of Machinery and Irrigation their version of micro-credentials are short term training courses of less than three months in duration (Đông, 2023). In addition to the time benefits of these courses, the focus is on developing learners' ability to find work (Đông, 2023). At the end of the training there is skill/knowledge evaluation assessment. Depending on the subject it's either practical (e.g., refrigeration) or online (e.g., IT). They also stated that skills keep changing so updating training and assessments for new skills is happening regularly to ensure they stay relevant to industry (Đông, 2023).

Anita M Moza, explored the topic of micro-credentials, digital credentials, and their potential to support talent development in the future Vietnamese workforce. Moza explains that most of the current Vietnamese workforce have completed at least high school level, and most have experience with mobile phones and with using a computer (Moza, 2022).

> Moza's research identifies several themes which may drive or impede the use of micro and digital credentials. These are: willingness of the local workforce and employers to try these new methods of skill development; acknowledgement and approval from the government; and the need to educate the public and other stakeholders in the use of these methods (Moza, 2022).

This ties in well with the implications drawn from the VCMI around the need to educate stakeholders as to their benefits and needing to drive this from a national policy level. Through the provision of support, gig workers will understand the use of them and from a platform provider/employer side, understand the value of what these gig workers can bring to the company.

This infrastructure work has begun at a higher education level with the Vietnamese Qualifications Framework though it is still in the early stages of being implemented. At present they are focusing on higher education and creating standards for professions. This is however, a good first step towards adding vocational education to the framework in time, along with micro-credential policy, which could take the same approach as the New Zealand.

In addition to this work being done by the government, they have created, in collaboration with Microsoft, the UK Government, and the International Organisation for Migration a free learning platform called Công Dân Số (Vietnam+, 2021). The platform provides short courses in digital skills, certificated by Microsoft, and a range of Soft Skills and Job Application courses, some developed with the UK government, Google others (Công Dân Số, n.d.). The benefits of this to the platform economy are that the programmes are free - so more open to people, accessible - via computer and on phones; focused at the national level with the backing of government and the big players – which ensures that qualifications are more relevant at a national level. A negative to this is that, as with all areas of the platform economy, they are focused on those people who can afford technological devices (phones and laptops), and the cost of Wi-Fi/phone data. The other issue is time itself. Many work in the platform economy to supplement their income from other work that they do, having the time to do extra learning on top of a full time job and part time job is not always possible as in addition to this, especially for women, there is the unpaid work that is a large fixture of their time as well.

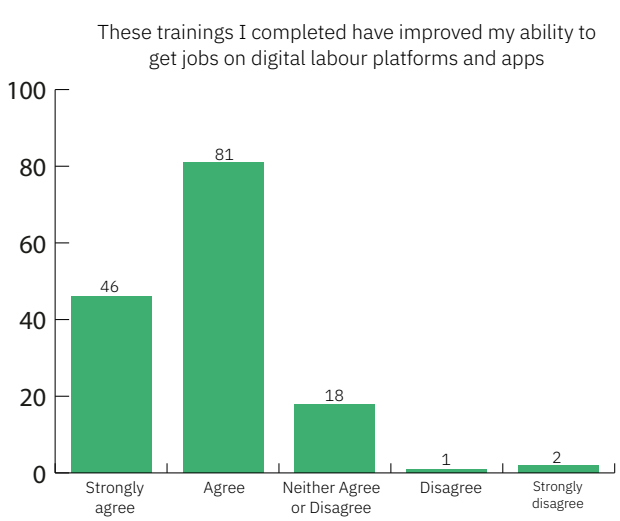
Vietnam has high ambitions in its digital skill sector, however statistics published in 2019 by the World Bank showed that Vietnam, in comparison to other countries in the SE Asia region, had the lowest level of digital skills available in its labour force (Morisset, 2021).

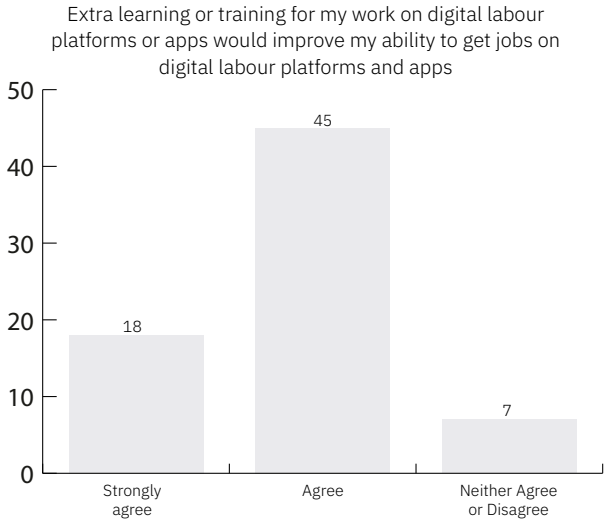
Whilst micro-credentials and the platform economy are the focus of this report, the wider digital skills and business are an important consideration, as the wider digital skillset in Vietnam is lacking, we can infer that these same findings and considerations will be as important, if not more so, for the gig workers in Vietnam.

The survey with Vietnamese gig workers spoke to those who had undertaken training for their gig work, and those who hadn't, to understand more about the relationship between micro-credentials and their careers, and what each group would feel would be useful for their careers.

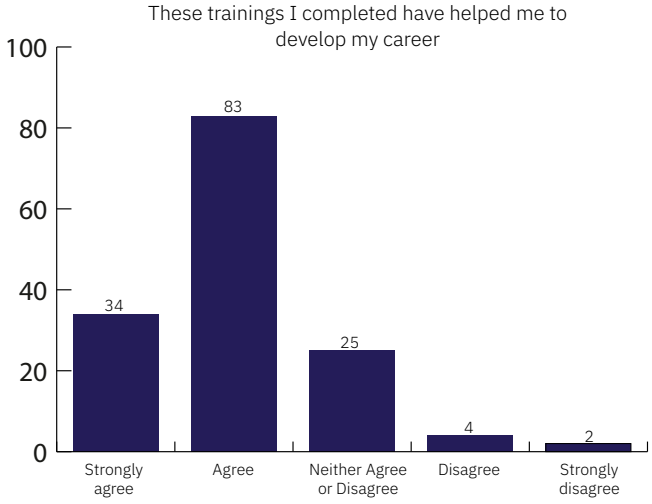
To determine if the workers who took training were undertaking this sprints' working definition of micro-credentials, they were asked if the training that they took featured assessment and asked how long the training was (to determine if it was of qualification size). 87% of the respondents had taken courses which included assessments and only seven respondents had training which took more than six months. Based on those figures most of the respondents were undertaking micro-credentials as per this research's definition.

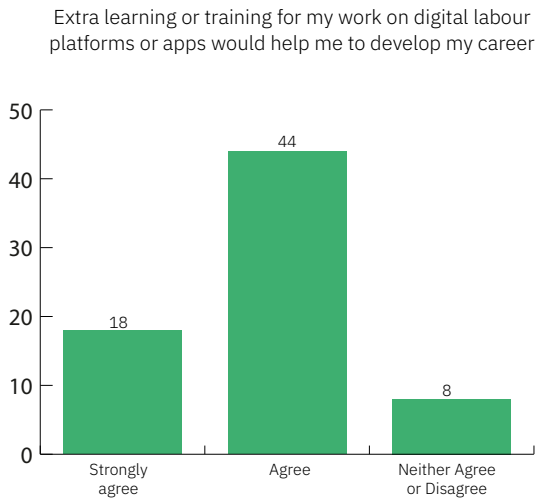
85.8% of the people who had completed a micro-credential (127 out of 148) agreed to some degree that it had improved their ability to get jobs. 90% (63 out of 70) of those surveyed who had not taken micro-credentials also agreed that taking them would improve their ability to get jobs. In this group of 70 none disagreed, and only seven neither agreed or diasgreed.



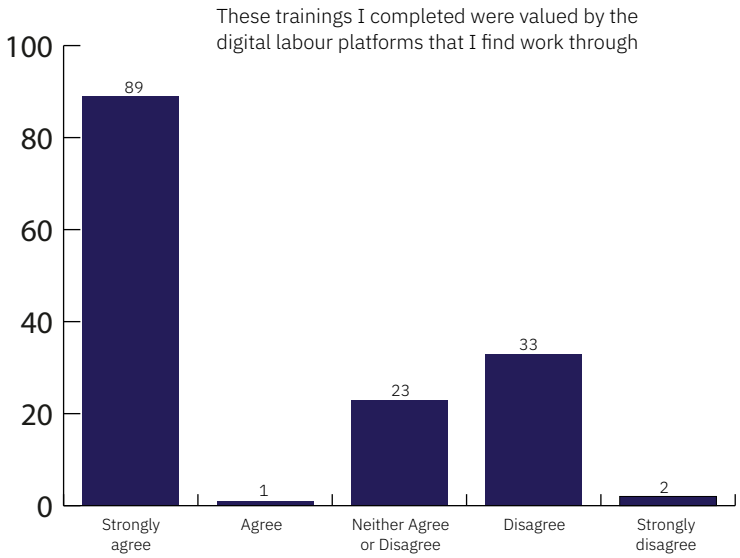


In keeping with the other case studies, a slightly lower amount of those surveyed – **79% (117 out of 148) - agreed that micro-credentials helped to develop their career.** From a gender perspective, 85% (34 out of 40) of women agreed to some degree that they had helped develop their career, with 77% of men (83 out of 108) agreeing as well. The workers who haven't yet taken micro-credentials had much the same response with the vast majority agreeing that undertaking micro-credentials would help them develop their career.





Though less said in the previous questions that taking micro-credentials have helped develop their career, more of them have said that platforms values them more because of them. Whilst these numbers are low it is still useful to see that training in general is valuable for platforms and this seems consistent across the case study countries. **85% of women (34 out of 40) and 81% of men (88 out of 108) did agree that the training was valued.**

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Conclusions and Recommendations

Comparing the survey data of those who have used micro-credentials from the case studies speaks to the relevance of micro-credentials from the perspective of gig workers. Of the 917 who had taken micro-credentials, **85% (781 respondents) agreed that having micro-credentials had improved their ability to get jobs on a digital labour platform.** Across the four case studies for this question the results were very close – in India 83%; Kenya 88%; Mexico 79%; and Vietnam 85%. Respondents confirmed the linkages between micro-credentials and improved chances on a digital labour platform. **79% (730 respondents) agreed that having micro-credentials had helped them to develop their career** (India 82%; Mexico 73%; Kenya 80%; and Vietnam 79%). **80% (735) agreed that the micro-credentials they had completed were valued by their platforms** (India 83%; Kenya 82%; Mexico 66%; and Vietnam 82%). Whilst Mexico is notably lower than the other case studies, Mexico and Vietnam did have much less people in the surveys for workers who have achieved at least one micro-credential (156 and 148 respectively) than India and Kenya (249 and 364 respectively).

This research has proven to be quite timely. By the time the research was conducted and published, both UNESCO and the OECD have published new reports and findings on the relevance of the topic; India, Slovakia, New Zealand, and Malaysia have published new guidelines and policies on micro-credentials and a discussion on a regional Southern Africa micro-credential grouping has begun. This Study adds to this body of knowledge. As an explorative piece of research with limited sample size and coverage, it may not provide highly specific and definitive conclusions. There is enough evidence, however, to be able to provide some recommendations for improving policies and credentialing structures in this very fast-changing sector.

The sections below outline some key themes from the research as well as recommendations within each to test them further and gain value from utilising micro-credentials in these areas. It is strongly recommended that further research is done in this area to enhance our collective understanding of both micro and digital credentials as well as the platform-based gig economy. Incorporating both aspects of these we recommend further research to identify the specific vulnerabilities, barriers and opportunities faced by marginalised groups, particularly women, within the use of micro-credentials in the gig economy.

Theme 1: Definitions and Policies of Credentials

The uncertainty that is prevalent around definitions and understanding of credentials is not sustainable, especially when digital platforms are connecting global labour markets.

What is most urgently required, in our opinion, based on this research is that countries and ideally groupings of countries, need to agree definitions of micro-credentials and digital credentials. A lack of agreed definitions impacts everything else in this report as without it, the value of credentials is diminished (Martin, 2022). There is some hope to be seen with international companies such as UNESCO and the ILO creating definitions, in addition to the European Union having an agreed definition, and conversations also beginning about a Southern African framework too.

Coupled with agreed definitions is the promotion of, and policies for, credentials and the acceptance of credentials in the national and international system. Without adequate promotion, or (inter)national policies, the

value of credentials is again diminished as there will be a lack of understanding of their purpose and function, from worker, employer, and platform perspectives. Without this understanding of what credentials are, and the value behind them, workers who undertake credentials could discover that they are not valued by either platform or employers due to the confusion. Countries like Kenya and India are already preparing to service the global digital labour economy with their respective talent pools. With acceptance of 'remote work' and 'on-demand work' injecting new momentum into this; international recognition of micro-credentials will need to be tackled sooner or later. Those familiar with the challenges of the global recognition of skills, especially that of qualifications acquired via formal and non-formal TVETs, would agree that this may turn out to be a big deterrent in reaping the benefits of the digital economy.

In addition to the confusion around credentialing definitions, we would also recommend national and internationally agreed definitions and regulation around the terms gig economy, gig worker, and platform workers. This recommendation is because without proper clarity around what is meant by these terms, who is responsible, where the duty lies, it will be difficult to fully understand how credentialing can prove to be valuable to workers in the platform economy.

Whilst there is a lack of policies currently in place there are some successes: the European Union is useful as it is an international policy covering all member states, allowing their members to create their own policies but creating a framework to allow portability and value across the whole EU. This is an exception however, and more work needs to be done at a government level to embed or at least recognise micro-credentials and their value to encourage their participation in the education system.

If national recognition or frameworks remains lacking this has the potential to result in workers taking micro-credentials without value. This is because employers could be confused as to the point of, or value of the training being provided if it hasn't been quality assured or regulated and is not on a (inter)national framework. This is not to say however that it is recommended that all micro-credentials across the world should be on a (inter)national framework. Industry and key worker bodies should be powerful drivers in the creation of what is needed with support from TVET and frameworks where it would add value.

Theme 2: Portability, Recognition, and Value

Learners and gig worker's value upskilling and wish to be able to own their credentials, be able to showcase them, and use them to build their careers both within and outside of a platform.

From the interviews and research conducted for this study, it is clear that both workers and TVET learners have expressed interest in digital credentials and perceive the value that it brings to their CV. However, they lack clarity on the quality of those on offer along with their portability, and ability to help them throughout their career journey.

In some ways, this is comparable to the lack of a cohesive definition of micro-credentials. If a worker has received a 10 credit micro-credential from New Zealand, a 2-hour micro-credential from Australia, and a 15-minute micro-credential from Peru, are they comparable? Would a New Zealand company accept the other two? The question of portability of micro-credentials, especially for vulnerable groups who are moving across locations, adds a sense of urgency to tackling the issues of consensus and common framework for understanding micro-credentials. Such an agreement will involve a complex multi-stakeholder dialogue and harmonisation process, which may lead to further discussions on mutual / global recognition of micro-credentials in context of digital and non-digital work.

UNESCO in their 2023 report state that 'the absence of a consensus on a definition of a micro-credential poses a challenge for quality assurance. Micro-credentials may not be trusted because there is a general lack of

a of transparency around standards' (UNESCO, 2022). In looking at the offerings of micro-credentials around the world there are offerings at TVET colleges, training providers both in-person and online, as well as the global micro-credential company offerings. As shown from the survey and interview data, it matters where credentials come from. When employers are looking at the credentials that a worker has, they are more impressed by those that are quality assured by reputable institutions and companies.

In a number of experts' definitions of micro-credentials, the input of industry/employer is central, and what they accept/perceive value in, is the most important consideration for workers and learners. A good example of this is Microsoft and IBM, where both have their own micro-credential and digital credential frameworks, owned by them, covering range of jobs in the IT sector. These are perceived as the 'gold standard' and are accepted worldwide. For micro-credentials in the platform-based economy, platforms need to be as invested, either by creating the micro-credentials themselves or by collectively identifying and promoting the ones that best suit their needs. Tied to this is the quality assurance piece, where TVET institutions could have a central role to play in being an independent third-party who can assure the quality of credentials as a way of supporting both the worker, and industry.

A consensus emerged from the interviews that the digital labour platforms themselves should be involved in the review of credentials but shouldn't be creating and managing the training themselves. There are several reasons for this. Firstly, especially in the Global South, the digital platforms adapt their business models rapidly. They close, are acquired, merged, or simply lose their market share etc. Private digital learning platforms offering micro-credentials may have a highly disruptive effect on the provision of training. It also becomes an issue with recognition and reliability. A credible, independent third-party creating, running, and updating the credentials gives the most opportunity for success as it provides a constant focus and the confidence that credentials will transfer across employers.

Utilising TVET colleges for instance to run these courses, in addition to online training platforms have both been suggested as solutions. The point that kept being brought back was reputation and the ability to trust the product. The OECD mentions in their recent report that whilst micro-credentials can lead to higher wages and better employment, it is greatly dependent on the programme the worker is taking, the course provider, and the characteristics of the worker (Kato, Gyorfi, & Weko, 2023).

Theme 3: Support & Accessibility

The biggest barriers to accessibility of micro-credentials are the digital divide, gender divide and skill-gaps.

The widening digital divide is one of the biggest issues that hampers access to and use of micro-credentials across the world. Having access to mobiles phones and internet data is essential for being in the gig economy but for many – particularly women – this access is via their family or community. Tied to the access are the norms and attitudes within society amongst communities and within families around women for instance, accessing their own mobile phones and having internet access. Some platforms try and support this, but it's a very difficult thing to build and grow. With undertaking micro-credentials online, one way in which training providers could better support those people without a lot of data is to have an offline provision in the learning so that they can download the learning when they have access, do the work offline and upload the results (van der Hijden & Martin, 2023).

A lack of basic (digital) literacy and skills can be a barrier to women who wish to be in the platform-based gig economy, and that lack of education can stem from the education system within their country (Shah, Maina, & Kipkoech, 2021). Gender segregation in a country's education system is the first barrier to further opportunities. For instance science and construction which are generally well paid and in-demand are still widely seen as

masculine work, whilst caring and education, which are generally less well paid, are usually perceived as feminine (Shah, Maina, & Kipkoech, 2021). In changing perceptions of these fields and removing the barriers which women face in upskilling will give them the opportunities to learn the competencies they need to be able to remain in employment. Tied to this is also further understand and flexibility around the different ways in which different groups learn, and the amount of time that they have to learn in. From the case studies above, women especially are regarded as having less available time to learn in than men, and this type of difference should be further researched and incorporated into learning so that women are not disadvantaged.

Tying in with accessibility is the ability for workers to showcase their achievements on their respective platforms. The statistics in the section above show that many platforms allow this, but there is still a lot that currently do not. If platforms did allow this, it could not only help workers to become more attractive to employers, but it could help the platform themselves by showcasing the level of skills that their workers have. There is the risk however for those workers who could be 'left behind' on platforms who allow sharing as they may not have educational achievements to share. For these workers being penalised for not having credentials it is imperative that the platforms educate their workers as to how these credentials can be accessed, along with the potential of RPL for those experienced but without credentials, for instance refugees.

Theme 4: In-Demand Skills

Platforms require that gig workers have higher transversal and soft skills, whilst they assume that gig workers already possess the necessary technical skills from TVET institutes or colleges.

One of the most interesting findings emerging from our interviews with platforms across the world was that they all shared the same desire of a particular skill set: 'core skills' also known as soft skills and transversal skills, for instance communication, customer service, digital marketing (ILO, 2021). This is not to say that platforms do not also value technical skills, but from our conversations the platforms said that workers usually came to the platform with a level of technical skill, depending on the work required. What many workers do not have however are these core skills, some of the platforms that were spoken to provide training on these areas as they see them as hugely important to retain customers, whilst others would hire a worker who has a credential in these skills, over someone who hasn't.

Some countries are embedding core skills into each of their credentials. The Indian micro-credential policy that launched in 2023 for instance specifically mentions that micro-credentials will "enable imparting employability skills, digital skills, soft skills" (National Council for Vocational Education & Training (NCVET), 2023).

There are several initiatives to bridge skills gaps to support workers. Kenyan governments' Ajira Digital aims to support the country's youth into digital work. Ajira offers both in-person and online courses. The aim of Ajira is to raise the profile of digital work and using mentorship and collaboration to engage in digital work (Ministry of ICT, Innovation and Youth Affairs, n.d.). To harness the existing capacities of the TVETs, ICT Authority of Kenya has recently launched the Jitume programme. Similarly, in Vietnam the Công Dân Số offers digital training across digital, soft skills and business skills with a range of third-party companies to add credibility (Vietnam+, 2021).

Theme 5: Assessing Skills Demands to Design Relevant Credentials

TVET Institutions can play a key role in proactively assessing skill demands of the platform economy and preparing learners for future jobs.

TVET institutions should take specific steps to leverage the growing demand for

micro-credentials. They should proactively repurpose the skills assessments of industries and employers to identify emerging skills and develop micro-credentials accordingly. They can also support both platforms and regulators by contributing to the development of a robust quality assurance mechanism that ensures the consistency and credibility of micro-credentials. Partnerships with global digital platforms and the workers themselves can facilitate the alignment of micro-credentials with real-world job requirements. Finally, integrating micro-credentials into existing programs and providing clear pathways for credit transfer and stackability will enable learners to build comprehensive and flexible skill sets that enhance their opportunities within and outside the gig economy.

Theme 6: Future-Focused Credentialing

Collaboration between education providers, TVET's, workers, industry and government to help begin developing credentials for emerging skills and competencies is a crucial step to help prevent wider skill gaps.

The concept of future-focused credentialing emerges as a crucial consideration. Policy makers should take proactive steps to foster an environment that supports the development and recognition of future-focused micro-credentials (ILO, 2021). This includes promoting collaboration between education providers, workers, TVETs, industry stakeholders, and accrediting bodies to identify emerging skills and competencies, establishing quality assurance mechanisms to ensure consistency and relevance of micro-credentials, and developing frameworks for seamless credit transfer and stackability (European Training Foundation, 2022). Among the front runners are Singapore and its SkillsFuture initiative, which includes the SkillsFuture Credit scheme. This policy provides all Singaporean citizens aged 25 and above with a credit of S$500 to pursue approved skills-related courses, including micro-credentials. The European Union has introduced the European Skills Agenda, which emphasizes the importance of micro-credentials and aims to develop a common framework for their recognition across member states. In the US, Lumina Foundation's Connecting Credentials initiative aims to create a more coherent and learner-centered credentialing system by encouraging collaboration among education institutions, employers, and industry associations. Brazil has implemented the National System of Professional Certification (Sistema Nacional de Certificação Profissional - SICFP) to promote the recognition of skills acquired through non-formal and informal learning. Complimenting these efforts, many platforms are increasingly investing in recognising and amplifying the credentials of its workers can benefit from the enhanced reputation as well as trust of the customers.

Ways Forward

The recommendations listed below are the suggested first steps to begin working on the six themes identified above with the purpose of better supporting and strengthening workers in the platform-based gig economy. Even if micro and digital credentials are only one part of a holistic effort required to improve opportunities for workers in the platform-based gig economy, especially for marginalised groups. This is the first study of these two new formats together: the platform-based gig economy, and credentialing. As the first piece of research in this area, this should hopefully only be the beginning to further understanding, and supporting the workers, and industry, to better train and support workers to thrive in the gig economy. Future research and investigations into the effectiveness of different pedagogical approaches and delivery modes for micro-credentials within formal and informal TVET settings would provide valuable insights. Another topic that was not covered in this research was the role played by TVET teachers, trainers, and instructors in mobilising the learners' interest in micro-credentials.

Although this study had intended to investigate how micro-credentials can generate economic (mainly financial) returns for the gig workers, it is not a simple question to answer. One of the reasons for this is the highly dynamic and fragmented nature of the data about gig economy. What this research has shown is that, in some instances, undertaking micro-credentials/being able to showcase digital credentials can allow a worker to get more jobs, therefore earn more money. In other instances, however, having micro and digital credentials does not allow workers to earn more, but allows them to keep up with the market, and still get jobs. Whereas without credentials, it reduces their opportunities on the platforms. To address this issue, the Gig Economy Initiative which GIZ implements on behalf of BMZ is also developing a scientific research-led tool called the Global Skills Compass that would identify in-demand skills using platform data and provide recommendations for future upskilling. This web application tool is also envisioned to be linked to the existing online learning offers of GIZ and other organisations.

To respond to one of the key gaps identified by this research – lack of credible and simple knowledge on value of micro-credentials for gig workers and learners – the partners in this research have created a support webpage, hosted by GIZ Digital Global with information about, and links to particular micro-credential and digital credential sites, to best support workers in the platform-based gig economy. It is our intention that this resource will help workers who do not have access to this type of training in their respective platforms, to use these to help themselves upskill and reskill. This website also includes a video defining the terms micro-credential and digital credential and outlines their use and how to determine which credentials they should sign up for.

https://www.bmz-digital.global/en/information-tool-on-value-of-micro-credentials/

Summary of Recommendations

- Policymakers must urgently create and apply national, regional, and globally agreed definitions of micro and digital credentials to more broadly promote the benefits of, and wider understanding of these concepts in addition to ensuring the portability of these credentials.
- Increase the availability of, and access to the internet, and training in technology so that workers are not disadvantaged by the digital divide, alongside increasing the potential for micro-credentials to be available offline where appropriate.
- TVET institutions, as already respected learning institutions, should be allowed to develop and utilise industry-relevant micro-credentials by leveraging existing industry engagement mechanisms.
- Education, industry, and government should collaborate to ensure that the terms of credentialing are more widely understood and respected so that industry understands the benefits of workers undertaking credentials, as well as giving education companies the understanding that credentials are respected within industry and government.
- More avenues need to be available – especially for women, people with disabilities, and refugees – to be able to access and complete micro-credentials to upskill and reskill themselves to have a better, independent future.

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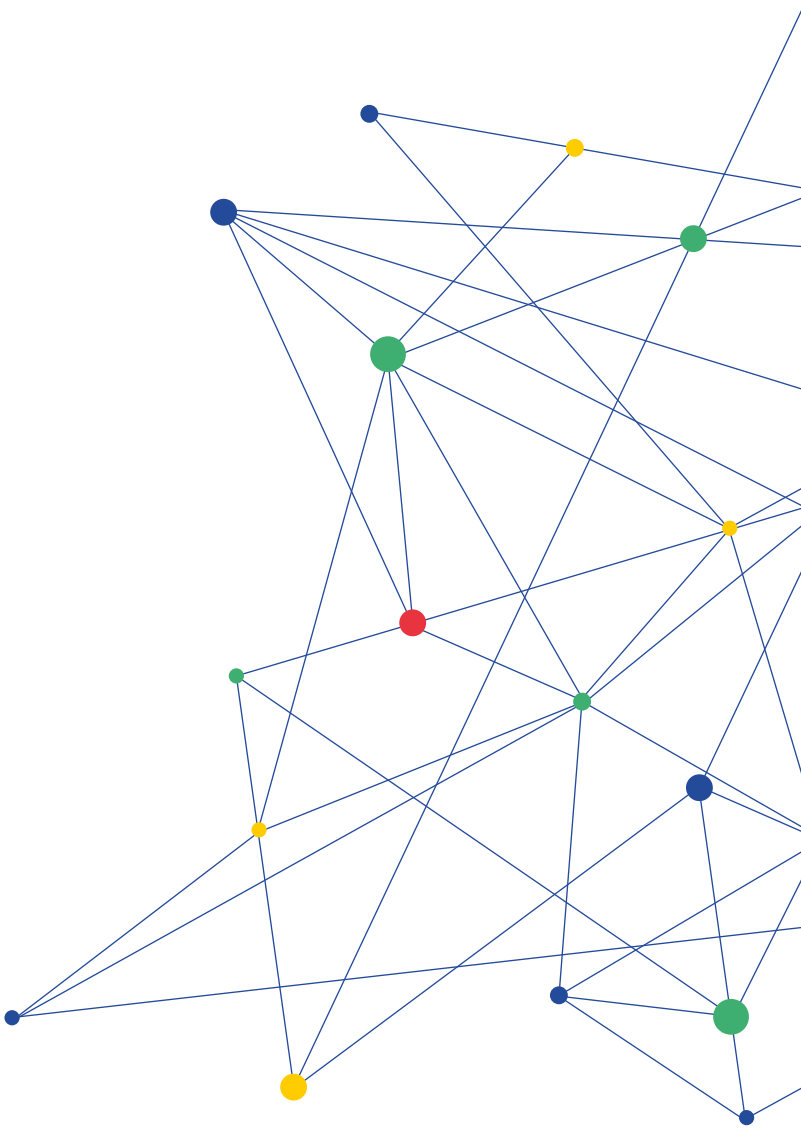

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