BROADCASTING COMMISSION

Digital, Media and Information Literacy
Policy Framework

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The Digital Imperative

The Fourth Industrial Revolution builds on the microprocessor and Internet revolutions and accelerates the emergence of a digital society. It is characterised by ubiquitous data connectivity, storage, and processing capability. These capabilities have a variety of manifestations – artificial intelligence, autonomous vehicles, natural language translators, smart cities, digital currencies, precision agriculture and so on - that are continuing to evolve as is normal in the formative innovation stages. As the advanced economies - the USA, Europe, and China - build out the ecosystems necessary to support the widespread deployment of these nascent technologies, even labour markets on the periphery will likely undergo shifts in the kinds of skills for which livable wages may be earned. This is likely to happen within the next 5 to 15 years, and persons who do not re-skill are likely to face technologically induced unemployment or severely depressed wages (Brynjolfsson, 2018; Brynjolfsson, 2021).

According to the World Development Report (2021) by the World Bank Group, nearly 70 percent of persons who do not use the internet or are incapable of taking advantage of increasingly accessible digital technologies in low- and middle-income countries, are being held back by deficiencies in digital literacy. Similarly, the GSM Association's 2016 report, "Connected Society: Digital Inclusion in Latin America and the Caribbean" asserts that nearly two-thirds of Jamaicans who have access to mobile broadband are not using it because they lack digital skills (Sharma, 2016).The Broadcasting Commission has declared that Jamaica "needs citizens who are highly internet-literate, are confident creators and consumers of content, and have the technical and social skills needed to participate

in the Fourth Industrial Revolution." Unfortunately, recent research on the digital skills of the upcoming entrants to the workforce (currently in secondary school) suggests that they do not have the requisite skills (Golding 2018). Furthermore, according to the Broadcasting Commission, in Jamaica, many of the current educational systems, legislation, policies and regulations are already obsolete and will not support Jamaica's transition to a digital society.

The COVID-19 pandemic painfully exposed severe deficits in the state of the digital public infrastructure in Jamaica. These deficits were aggravated by the significant disparities in digital access and digital capacity – specifically, literacy, numeracy and digital skills. As a result of these disparities, commonly referred to as the digital divide, the more vulnerable and underserved individuals have been significantly excluded from the transition to the digital delivery model for education, commerce and public services. It is not an exaggeration to assert that Jamaica is now at a critical inflection point where deliberate and sustained effort is required to bridge the widening digital divide in order to ensure that the accelerated deployment of digital ecosystems become enablers rather than barriers to inclusive and sustainable development.

DMIL - A Unified Competency Model

Digital Media and Information literacy (DMIL) is a composite concept that combines a range of interrelated digital, media and information competencies (knowledge, skills and attitudes). It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy". The core component of the proposed unified DMIL Framework is the competency model which was developed as a synthesis of two highly regarded and widely adopted UNESCO global frameworks for digital, media and information literacy - the Digital Literacy Global Framework and the Global Media and Information Literacy Assessment Framework (see Appendix A). This DMIL model along with other components such as assessment mechanisms and implementation pathways are situated within a broader DMIL framework (see Appendix B & Appendix C). Guided by this framework, a national baseline study was conducted in order to ascertain the current state of digital, media and information literacies amongst the Jamaican population (see Appendix E).

This policy framework represents the culmination of a broader body of work undertaken through the direction of the Broadcasting Commission. The policy recommendations contained within are data-driven; derived from extensive consultations and nation-wide data collection. This situates the resulting policy as a firm response to the new literacy needs of Jamaica and Jamaicans wrought by the ongoing media and technology evolutions (Clayton & Green 2018; Golding 2018; Ojanperä et al., 2019).

The unified DMIL competency framework provides a reference standard for digital, media and information literacy that can support curriculum development and assessment in training and education contexts, as well as occupational / job standards for transversal digital skills in the workplace and training interventions for specific sectors developed in compliance with established NCTVET standards. This initial version of the DMIL Model and Framework are intended to not only be responsive to local needs, but to allow global comparability so that Jamaica may better align its education, training and skills development efforts to

protect and enhance the welfare of the Jamaican people in a globalised knowledge society (Coward & Fellows, 2018). The authors thank the Steering Committee Members and large number of collaborators (see Appendix D) who provided invaluable guidance, recommendations and qualitative feedback to properly interpret the desk research and empirical quantitative research within the Jamaican context.

A Whole of Society Approach

This policy framework recognizes that the emerging digital ecosystem is a complex network of constituents and stakeholders with multiple inter-dependencies. The unified DMIL framework therefore advocates a whole-of-society approach to addressing the critical challenge of digital literacies as a digital transformation enabler across four broad societal channels: Public Sector | Productive Sector | Education & Training | Communities & Civil Society.

The policy landscape is anchored in a core set of principles for digital development and draws on these principles to articulate a vision for each of these four societal channels:

Public Sector: A successful DMIL policy implementation will foster a Public Sector in which innovation and openness are core values, and collaborative and intelligent governance are norms which support and are supported by modern regulations that embrace technology and a continually evolving platform of integrated services and data.

Productive Sector: A successful DMIL policy implementation will foster a Productive Sector that prioritises digital leadership and governance, and developing digital, media, and information literacy in the workforce combined with significant investments in R&D, other innovative corporate strategies, and building trust throughout their value chains.

Education & Training: A successful DMIL policy implementation will foster an Education & Training Sector in which the development of the digital, media and information literacy of every student and education sector employee is a primary concern for every teacher, school leader, and educational administrator.

Communities & Civil Society: A successful DMIL policy implementation will foster Communities & Civil Society in which each community and resident gets involved in advocating for municipal and digital infrastructure, training and human capacity development to continually transform their community into a human-centric, inclusive and sustainable digital innovation ecosystem that provides the capacities for their chosen social, cultural and economic activities and preserves human rights.

To assure an implementation approach to DMIL that accounts for this complex ecosystem of stakeholders, inter-dependencies and the intended longer term social change, this policy framework employs a comprehensive planning and implementation framework, called the outcome mapping methodology, that provides for deliberate programming of the desirable behavior, relationships and actions of the target beneficiaries and institutional actors. It incorporates ongoing monitoring and evaluation to determine whether the policy implementation is achieving intentional outputs and outcomes in the medium and long term.

Introduction

In Jamaica there is a distinct divide between the haves and the have-nots, with Jamaica's income inequality corresponding to that of the most unequal developed country in the world. Overlaid on this income inequality divide is a digital divide, between those who suffer information overload (from hundreds of cable TV stations as well as new media) and those who have very limited access to the predominant 21st century delivery channels for information distribution and information services. What both groups have in common is very little formal preparation for evaluating media and information sources or for functioning as producers rather than mere consumers of media and information. Without digital, media and information literacy, individuals are subject to manipulation through digital and analogue media channels, and ill-prepared to be socially and economically empowered participants in the global information society.

Media and information providers play a critical role in society and have a huge impact on governance. The media can play an important role in helping the citizenry understand complex issues and balance competing interests, or it may succumb to commercial interests and stoke divisions among different groups in a society. The Internet, and in particular, the advent of global technology platforms such as Youtube, Facebook, Instagram, Spotify, and Twitter, has forced changes to the business models of media organisations that predate the World Wide Web and require media consumers to be much more discerning and critical in their media consumption. These challenges are compounded by the behaviours of new kinds of media and information producers as well as the emergent properties of media consumers in networked, interactive information environments.

1.1 Challenges in 21st century information environments

1.1.1 Homophily

For much of the twentieth century journalism was a highly esteemed profession. The media and journalism school at The University of the West Indies, Mona (known as CARIMAC) was such a magnet for some of the most able humanities students, that it successfully imposed an additional screening exam for those who had already met the university's matriculation requirements but wished to train to join the media fraternity by way of a journalism degree. In a similar vein, traditional media organisations went to great pains to present themselves as

credible and trustworthy organisations, with clear separations between news and opinions. It was a reasonable assumption that much of the population received the same news story via the nightly news on JBC-TV or CVM-TV, and in the Sunday newspapers via the Jamaica Observer and The Sunday Gleaner.

However, social media has changed the news landscape irrevocably. Almost all national television networks or newspaper companies have become networked and interactive media companies with vibrant websites and social media channels where audience members can add their own analyses to news stories and interact with other persons. Some of these media companies find themselves in hyper-competitive markets in which they have decided to survive by starkly allying themselves with particular political or ideological positions. This has combined with an online tendency known as homophily, in which persons choose particular websites and social media groups where they can interact with persons who share similar beliefs and exclude those who do not. Frequently, the effect is heightened polarisation between groups with opposing views.

1.1.2 Information Bubble
Technology platform companies such as Google, Facebook, and Twitter have created algorithms to maximise the amount of time that users spend on their respective platforms. They do this because of their interest in maximising their profits. However, the effect is that the Google Search Engine Results Page, Facebook feed, and Twitter feed for any one individual is customised by the respective algorithms to provide an information bubble that does not challenge the user's biases, but rather, reinforces them.

Users of social media have learned that they can take advantage of the freedom from media regulation enjoyed by the global technology platforms to build huge global followings independent of the control of traditional media organisations. Persons post podcasts, video clips, blog posts and other media content that are largely unregulated and for which they are for the most part unaccountable. The resulting information pollution is of at least three types: malinformation, misinformation, and disinformation. Sometimes true information is shared in a manner intended to cause harm, for example, by sharing someone's home address or other personal information (also known as doxing): this is malinformation. At other times, persons are unwitting vectors for the spread of false or misleading information: this is misinformation. Disinformation is where false information is deliberately spread to cause harm. Recent instances of information pollution have ranged from the promotion of fraudulent music festivals by models, to unethical non-disclosures of paid promotion of cryptocurrencies by vloggers, and even the promotion of dangerous medical treatments for CoVid-19 by podcasters.

1.1.4 Cyber exploits
Another class of harms are perpetrated by individual criminals and crime syndicates. This includes scamming, spear phishing, online grooming and cyber-bullying. Large parts of the public are exposed to these potential harms, and traditionally vulnerable groups such as children and the elderly are among the most susceptible.

1.1.5 Data colonialism

Many technology and foreign policy experts have said that whoever leads the world in Artificial Intelligence (AI) will control the world. Artificial intelligence thrives on 'big data', large collections of data such as those amassed by American technology platforms, Meta (parent company of Facebook), Alphabet (parent company of Google), Amazon, Apple and the Chinese equivalents Baidu, Alibaba, and Tencent. These data are frequently records of the activities or transactions of individuals who in doing business with these firms sacrifice their privacy for convenience. This sacrifice opens these persons and their nation states to what world-acclaimed historian, Yuval Hariri, calls data colonialism, the control of subject countries through data about their citizens and economy.

The immense datasets on consumers that are collected, collated and sold around the world by data brokers are commonly used to microtarget persons to encourage them to purchase more and more goods and services. Many persons are not aware of how relentlessly they are being pursued online. Several developed countries such as the UK and Canada have recognized the need to develop educational programmes and regulatory frameworks to protect their citizens from potential online harms. In Jamaica, the Data Protection Act is slated to come into effect in December 2023. However, any such laws and regulations may be rendered useless if the citizens are not educated in how to protect themselves in the new information ecosystem.

Data colonialism is not only a threat to individuals, but to entire nation states. The European Union, finding itself a distant third in the AI race behind the USA and China, passed the General Data Protection Regulation (GDPR) to protect its citizens' data, and avoid becoming a data colony. India passed legislation requiring data on its citizens to be stored on data centres within India. But data colonialism is not something only powerful countries need to be concerned about. According to The Guardian newspaper, Cambridge Analytica is a private sector firm that has combined the psychological warfare techniques developed by the UK and US militaries with the big data techniques of Silicon Valley and Wall Street for the purpose of manipulating elections across the world. A former Cambridge Analytica (CA) employee explained that CA purchased consumer datasets from data brokers and combined them with Facebook data with the goal of capturing "every single aspect of every voter's information environment." The manipulation of elections in the Caribbean nation state of Trinidad and Tobago was used to demonstrate CA's capability to a billionaire venture capital investor.

1.1.6 Media Operations

States have long used the media to spread messages designed to massage public opinion in their own countries as well as countries to which they were hostile. There are several terms for these activities: propaganda, influence activities, media operations, information operations (IO), psychological operations (PsyOps), and most recently Strategic Communications (StratCom). In 2014, a former Commander of the UK PsyOps Unit wrote that, "In US doctrine, for example, I (for information) is placed alongside D (diplomacy), M (military), and E (economics) as metrics of US power." An obvious example is the media campaign by some of the most highly regarded Western media companies that preceded and legitimised the 2003 invasion of Iraq on the pretext that Iraq possessed weapons of mass destruction. That this campaign did not rely on social media reinforces the

UNESCO Media and Information Literacy (MIL) position that MIL is important even in the absence of networked, interactive media. The advent of memes in the social media era and deep fakes produced by artificial intelligence makes the need for MIL even more urgent.

The cumulative effect of these changes in the media industry is that media consumers feel that they are surrounded by conflicting messages and besieged by misinformation. For them truth has become more about emotional resonance than objective reality. This is a direct threat to their own well-being as is evident from the vast swathes of misinformation about the CoVid-19 pandemic circulating in various media. Given that good governance relies on citizens who can understand and evaluate not just the commercial motives and operations of social media influencers, media companies, and technology platform companies, but also the non-commercial motives and activities of other media producers, low levels of digital, media and information literacy are a clear and present danger to social cohesion and the success of democratic societies.

1.2 Economic Challenges

There are also pressing economic facts that point to low digital, media and information literacy as causative factors.
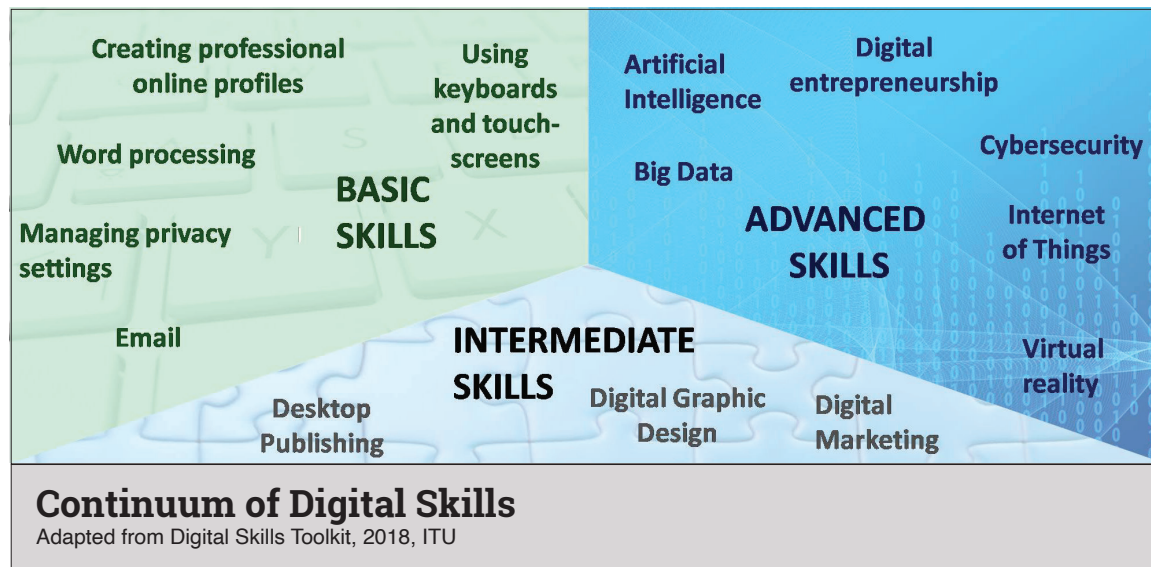
In a May 2020 webinar, a presenter for Compete Caribbean pointed out that since the late 1970s the Caribbean's share of global GDP has fallen, because the rate of productivity increases in the Caribbean has slowed relative to the rest of the world, and in particular, other small economies. This is especially true for Jamaica. As a cultural superpower, Jamaica contributed multiple genres of music to world culture in the twentieth century, and its Cultural and Creative Services Exports were ranked 25th in the world in 2019 (Global Innovation Index). However, global digitalization poses a threat for Brand Jamaica as is evident from Jamaica's very low rank of 98 for Online creativity (GII 2019).

The danger is not limited to Cultural and Creative industries. As a small open economy, Jamaica's economic success rests on its ability to produce goods and services at internationally competitive prices in order to integrate into the global value chains of its major trading partners. Jamaica's major trading partners are industrialised countries - the USA, Canada, and the UK - whose producers and consumers are much further advanced in their adoption of digital technologies. According to the World Economic Forum's Global Competitiveness Report (Schwab, 2019), Jamaica's ICT Adoption is ranked 93rd in the world, whereas its major trading partners fall between the 9th and 35th ranks. Schwab notes that even within its income group, Jamaica's rank is particularly weak. Provision in the Jamaican public sector correlates with that in the private sector. The Social Progress Index 2019 notes that Jamaica is ranked 119th in the world for "Access to online governance" which even for its income group, is particularly weak.

It is tempting to think that the issue is a lack of ICT infrastructure or inaccessibility of ICTs. However, the GSM Association's 2016 report, "Connected Society: Digital Inclusion in Latin America and the Caribbean" asserts that nearly two-thirds

of Jamaicans who have access to mobile broadband are not using it because they lack digital skills (Sharma, 2016). The disparity between access and use is further supported by Jamaica's ICT Access ranking of 81 in the world whereas Online e-participation is ranked 118 (GII 2019).

The need for human capital development to support economic transformation is more persuasive. As Yuval Hariri asserted at Davos 2020, citizens who lack digital skills are vulnerable to becoming economically irrelevant in the global economy.

Creating professional online profiles

Using keyboards and touch-screens

Artificial Intelligence

Digital entrepreneurship

Word processing

Cybersecurity

BASIC SKILLS

Big Data

Managing privacy settings

ADVANCED SKILLS

Internet of Things

Email

INTERMEDIATE SKILLS

Virtual reality

Desktop Publishing

Digital Graphic Design

Digital Marketing

Continuum of Digital Skills
Adapted from Digital Skills Toolkit, 2018, ITU

As computing is incorporated into everyday objects and becomes pervasive and invisible through the Internet of Things (IoT) and Artificial Intelligence (AI), differences in digital know-how will create new digital divides and exacerbate opportunity inequalities.

This economic environment challenges Jamaican firms to adopt digital technologies to enhance operational efficiencies as well as to use digital technologies to offer new digital value propositions (Ross et al., 2019). For these digital transformations to succeed, these organisations' board members, top management teams, and employees all need to be digitally literate. That is, these Jamaicans need to be able to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital devices and networked technologies (Law et al., 2018). These competences are essential for the improvement of productivity at the level of the individual employee and entrepreneur, enterprise, sector, and country.

Whole of Society Approach

The digitalization of media and information, and more broadly, the ongoing digitalization of the global society and economy, requires that Jamaica identifies the new competences needed for its residents to thrive in this new digital age. These competences are collectively referred to in this policy framework as Digital Media and Information Literacy (DMIL for short). Further, the scale of the transformation needed requires a whole of society approach. Therefore the policy framework recommends four implementation channels by which all residents and citizens, regardless of age, occupational status, or existing literacy level, can access the developmental opportunities they need to be able to succeed in the Fourth Industrial Revolution. These Implementation Channels are:

1. Public Sector

2. Productive Sector

3. Education & Training

4. Communities & Civil Society

The Public Sector includes all those organisations set up to provide public services, and all persons employed to provide public services regardless of contractual status. The Productive Sector is largely made up of the private sector, but also includes government-owned entities that provide goods and services similar to the private sector. Education & Training refers to the public education system comprising nearly 1000 schools, colleges and universities, their private sector equivalents, including training institutions for technical and vocational education and lifelong learning, and all the administrative bodies set up to support the education sector. Communities & Civil Society refers first of all to the nearly 775 geographically defined communities across Jamaica, as well as the large and diverse group of entities widely understood to comprise civil society.

Principles

The principles that guide this policy are informed by the nature of the challenges that Jamaica is now facing and the lessons learned from previous efforts locally and globally (in particular the Principles for Digital Development), to address similar problems.

Implementation Principles for Jamaica's Digital Literacy Policy 1.0
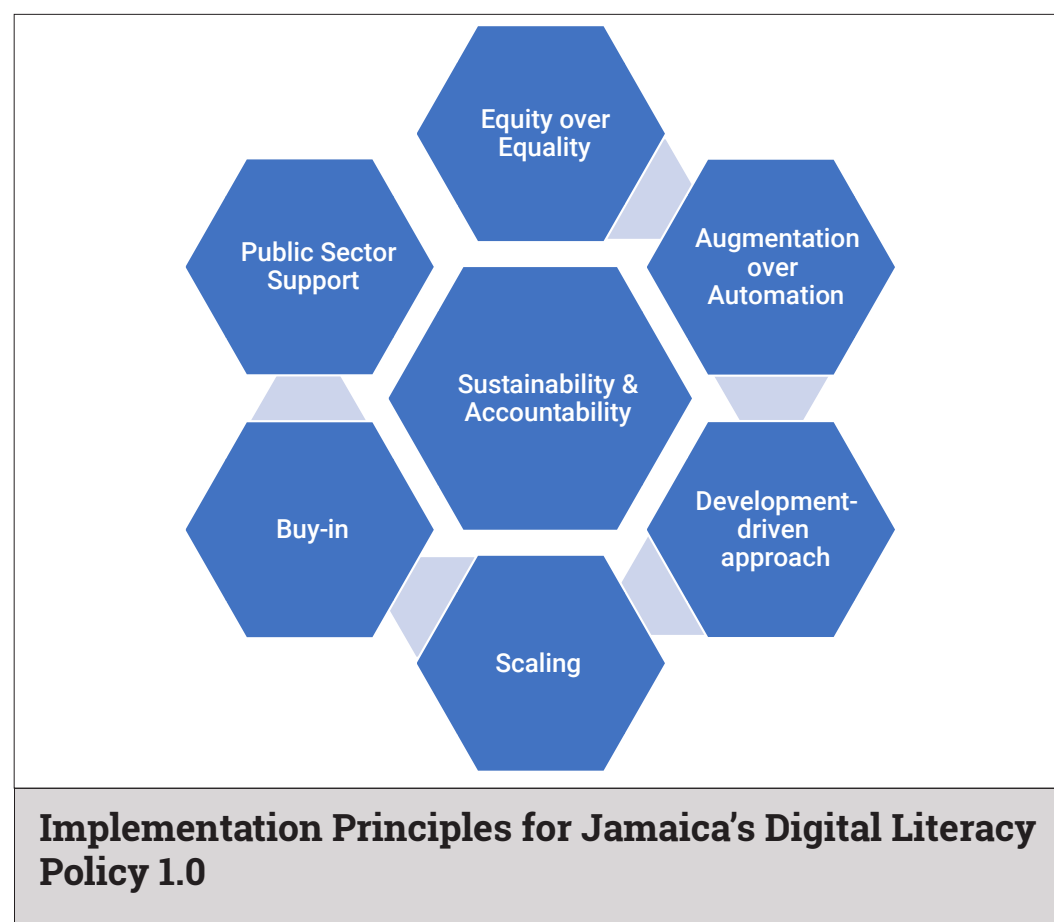
3.1 Equity over Equality

It is important to prioritise resources towards those communities and marginalised groups that rigorous empirical local research show to be the most in need. Some communities and individuals will need more resources than others and should get it. A comprehensive and holistic approach to resource allocation is critical to avoid a seemingly egalitarian approach which allows the already better resourced and organised groups to co-opt resources and exacerbate Jamaica's endemic educational, social, and economic inequalities[1].

1. In accordance with the Inverse Equity Hypothesis, the national Jamaican baseline of Digital, Media and Information Literacy Skills conducted in 2022 shows that persons who are older, less educated, live in rural communities and therefore would derive the greatest marginal benefit from Internet access and digital skills - have less access to the Internet and report lower DMIL skill levels.

Some economic subsectors (within the Productive Sector channel) which are not well-organised to advocate for their interests, and are not now, or ever likely to be globally competitive, are nevertheless critical for national resilience or as essential pillars for other sectors in which Jamaica intends to be globally competitive. It is essential that these subsectors are identified and supplied with the resources that they need, even when these resources appear disproportionate to their voice.

3.2 Augmentation over Automation

Much of the funds invested in digital R&D in the world's advanced economies aim at replacing human labour and depressing wages through automation which has exacerbated income and wealth inequality[2]. Jamaica should pattern those countries that have decided to prioritise policy choices that augment human labour to catalyse innovation even while preserving the option to automate for reasons of human safety, dignity and other national interests.

3.3 Development-driven approach

Development is not something that can be done for an individual, organisation or community; it can only be accomplished with that entity. Therefore the DMIL policy should emphasise incorporating multiple stakeholder types who represent local beneficiaries as well as local experts, giving tacit knowledge equal weight as scientific knowledge to identify the challenges and opportunities that are important to that community, and harnessing the necessary resources to develop the specific capacities important to that community (Aiken, 2021). This principle also includes exploring the range of funding models to come up with the most impactful and sustainable approach.

The development of social capital in the form of capacities to co-opt informational, technological, financial and human resources internally and externally, is organisational / community development. Therefore, to engage with these challenges we must work with the community to test assumptions and preliminary designs, and design implementation activities that facilitate continual identification and measurement of the primary variables influencing development and the nature of those influences. We must help the communities draw on existing knowledge and technologies, and share their stories nationally and internationally, both with technical experts and the general public. In sum, we must embrace participatory design and implementation.

3.4 Scaling

Many policies encourage the development of templates and the adoption of other mass production practices and approaches to enable scaling nationally, but the history of social entrepreneurship and community development shows that a designerly approach is essential for success. This is important for DMIL because the social and economic means by which rural communities support themselves are different from urban communities even within the same parish, and there are further differences between remote and rural communities. Therefore, the changes to social, educational, and job-related practices and norms that communities will need will be different. Most important will be making the effort and time for the development of empathy with the intended beneficiaries, and other tested and proven change facilitation practices.

2. Agrawal (2023), Brynjolfsson (2021) and other academic economists have argued that much of the advanced technologies focus on replacing human labor rather than augmenting it, not because of some inherent quality of innovative technologies, but because of short-sighted investment and public policy decisions.

3.5 Buy-in

Cognitive biases make the communication of science (such as the results of this research) complex, and demands special skill and attention to the contexts and intended audiences. Therefore to get buy-in from the general population, DMIL implementation must emphasise inclusive social and cultural institutionalisation, mainstreaming and integration towards making DMIL compatible with, and reinforced by, the social and cultural values that Jamaica aspires to, including elements like Jamaican music and dance, idiom, religion and indigenous knowledge[3]. This kind of activity can benefit from national expertise in communication for social and behavioural change, Jamaican culture, and sociology.

3.6 Public Sector Support

Many new initiatives are starved of public sector support because the additional workload of supporting the new exciting, forward-thinking, career-changing initiative is added to the workload of the existing Ministries, Departments and Agencies without regard for whether they have the capacity to take on this additional workload. Some of the MDAs are then unable to properly support the new initiative for the months or years of effort required to effect the significant changes. The appropriate solution is to ask each MDA to develop the organisational posts, complete with job descriptions, that are needed for their MDAs to effectively execute their roles in the national DMIL strategy.

3.7 Sustainability & Accountability

Sustainability of the DMIL implementation programme will rest on prioritising investments and activities that will transform communities, firms, other organisations, and individuals so that they are more self-reliant and financially capable of contributing to the sustenance of the ongoing transformation process. Given the very open nature of Jamaica's economy and the attendant high loss rates for some types of public investments, it is essential to identify those investments that will be tax efficient to facilitate public investments in the ongoing transformation process.

To ensure that the digital transformations of communities, the productive sector, the public sector, education and training sectors remain a policy priority, a committee made up of highly respected members of the private sector and civil society must be established and empowered to continually scrutinise and publicise:

1. The Annual Work Plan, including resource allocations and key performance indicators for the transformation of each channel.

2. Quarterly reports from the government on the progress through each implementation channel of the digital transformation of the society and economy.

Outcome Mapping Methodology

We employ Outcome Mapping Methodology (OMM) which provides a comprehensive design, planning, monitoring and evaluation framework that allows for a deliberate programming of the desirable behavior, relationships and actions of the target constituents and institutional actors arising from the DMIL policy implementation.

Previous efforts at implementing Digital/Media Information Literacy standards and competencies in Jamaica focused on embedding digital and media literacy in the curriculum of teachers colleges and for teaching and learning in primary and secondary schools. Our analysis suggests the need for an implementation approach to DMIL that has to account for a much more complex ecosystem of stakeholders, with multiple inter-dependencies. A Unified DMIL Framework and Policy therefore advocates a whole-of-society approach to addressing the critical challenge of digital literacies as a digital transformation enabler across four broad categories of stakeholders: Public Sector | Productive Sector | Education & Training | Communities & Civil Society.
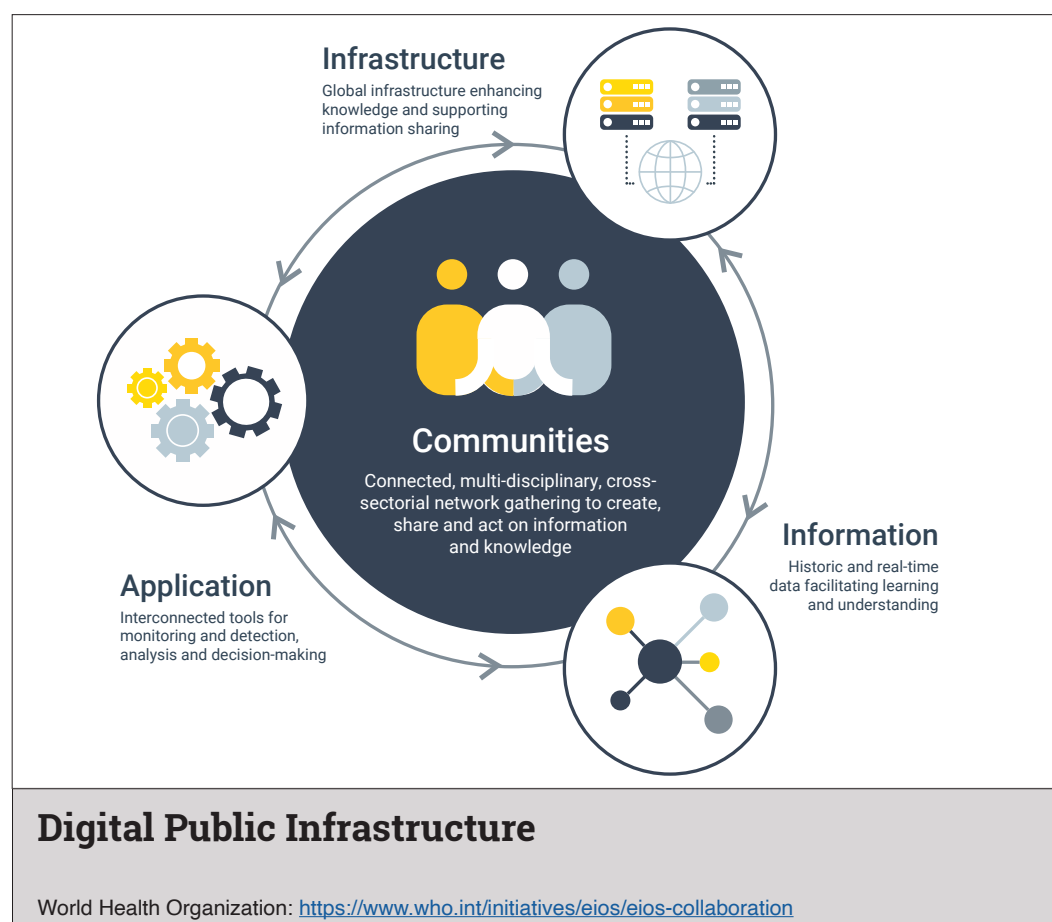
Outcome Mapping provides an appropriate framework (relative to other more linear assessment methods) for capturing longer term social change typically associated with multiple interventions that are effected through their contribution to outcomes produced by a complex ecosystem of stakeholders. In the application of the OMM method, boundary partners are the focus of creating behaviour changes and strategic partners support the change process. Identification of the boundary and strategic partners is done by conducting a stakeholder analysis. In our DMIL policy framework, the boundary partners are the four broad categories of stakeholders and we identify key strategic partners that will play a key role in implementation. In the initial intentional design stage we outline for each boundary partner, the vision, mission, outcome challenges and progress markers which are a set of graduated goals and desired outcomes. Strategy maps are then used to define the strategic activities required to support the achievement of outcomes. The outcome and performance monitoring stage involves the setting of monitoring priorities based on consultations with boundary and strategic partners and maps the progress of changes in behavior that are planned for each boundary partner as well as the progress of the strategic activities that support the achievement of outcomes. Evaluation planning is conducted to determine on an ongoing basis, whether the policy implementation is achieving intentional outputs and outcomes associated with each boundary partner.

Visions and Goals

5.1.a Public Sector Channel Vision

A successful DMIL policy implementation will foster a Public Sector in which innovation and openness are core values, and collaborative and intelligent governance are norms which support and are supported by modern regulations that embrace technology and a continually evolving platform of integrated services and data. Intelligent governance is algorithmic, transparent, and draws on near real-time sensors, measurement and analytics systems to support highly responsive decision-making.

Infrastructure
Global infrastructure enhancing knowledge and supporting information sharing

Communities
Connected, multi-disciplinary, cross-sectorial network gathering to create, share and act on information and knowledge

Information
Historic and real-time data facilitating learning and understanding

Application
Interconnected tools for monitoring and detection, analysis and decision-making

Digital Public Infrastructure

World Health Organization: https://www.who.int/initiatives/eios/eios-collaboration

5.1.b Public Sector Channel Goals

The implementation intends to see a Public Sector that:

1. works continuously to develop, recognize, promote and retain the innovative capacity of civil servants
2. works extensively with local startups and established industry players to learn about and incubate new technologies and innovations
3. embraces regulations and good practices that support and encourage the adoption and adaptation of emerging technologies and innovative practices with strong guard rails for content and data management, privacy and protection of human rights
4. aggressively adopts digital technologies and innovative practices with strong cybersecurity and data privacy guard rails
5. work continuously to build citizens' trust
6. participates extensively in the international governance of digital technologies
7. embraces practices that ensure the public service is continually becoming more inclusive and efficient.

5.2.a Productive Sector Channel Vision

A successful DMIL policy implementation will foster a Productive Sector that prioritises digital leadership and governance, and developing digital, media, and information literacy in the workforce combined with significant investments in R&D, other innovative corporate strategies, and building trust throughout their supply chains.

5.2.b Productive Sector Channel Goals

The implementation of the DMIL national policy framework intends to see a Productive Sector that:

1. continually identifies and articulates the current, emerging and future needs for digital skills in each sector (through sector skills councils) and works with the education and training sector to build and deploy appropriate capacity building responses
2. continuously trains their leaders, HR teams, and entire labour force to develop their digital innovation, digital ethics, and digital literacy capacity
3. embeds continuous improvement within all organisational functions
4. commits funds and personnel to digital R&D and innovation management.

5.3.a Education & Training Channel Vision

A successful DMIL policy implementation will foster an Education & Training Sector in which the development of the digital, media and information literacy of every student and education sector employee is a primary concern for every teacher, school leader, and educational administrator.

5.3.b Education & Training Channel Goals

The implementation of the DMIL national policy framework intends to see an Education & Training Sector that:

1. ensures that teacher educators have adequate and appropriate training in digital literacy techniques and pedagogies, and required equipment and materials to integrate digital literacy into their teaching
2. ensures that teachers in training receive significant exposure to and practise with digital literacy techniques and pedagogies within their disciplines / subjects, and are equipped to use digital technologies extensively and artfully in the classroom
3. ensures that teachers in service receive significant continuing education in the use of digital literacy techniques and pedagogies in their individual disciplines / subjects
4. provides teachers in service with superlative support, including materials, lesson plans, IT staff support, and peer-to-peer networking, for integrating digital literacy into their classes
5. provides students at all levels with many adequate opportunities to practise and hone their digital literacy skills, to see how the skills are used in a wide variety of economic, social and cultural situations, and to assess their progress regularly
6. equips learners to contend with the range of challenges and opportunities in the digital ecosystem
7. ensures that teacher educators, teachers-in-training, and teachers-in-service all learn how to integrate continuous improvement and innovation into their teaching practice.

5.4.a Communities & Civil Society Channel Vision

A successful DMIL policy implementation will foster Communities & Civil Society in which each community and resident gets involved in advocating for municipal and digital infrastructure, training and human capacity development to continually transform their community into a human-centric, inclusive and sustainable digital innovation ecosystem that provides the capacities for their chosen social, cultural and economic activities and supports preservation of human rights.

5.4.b Communities & Civil Society Channel Goals

The implementation of the DMIL national policy framework intends to see Communities and Civil Society that:

1. seek to identify the digital literacy needs of all community members, especially those from vulnerable groups (e.g. youth not in employment, education or training; persons with disabilities including the neurodiverse; inner-city residents; elderly; children)
2. provide safe, hospitable environments for members to learn and practise digital skills, to be innovative and entrepreneurial, especially within the context of projects that foster community renewal, sustainability, and development of the cultural and creative industries
3. interact with the local government, central government, schools, telecom services providers, media firms, other businesses and organisations to

advocate for DMIL as a basic right in order for survival in the digital economy and society

4. organise to acquire the municipal and digital infrastructure they want to transform their communities into safe, socio-economically, and environmentally sustainable communities

5. guide and support the development of local, inclusive, digital ecosystems.

Policies and Strategies

6.1 Policy Objectives

6.1.1 Public Sector Channel
Expect to See
1. Within 3 years, all public sector workers (not qualified by years) must benefit from regular and continuing DMIL exposure and training sufficient to achieve at least basic skills in Digital, Media and Information Literacy. DMIL is to be promoted as a strategic priority, reflected in training plans and operational plans.

Like to See
2. Within 2 years of DMIL public sector launch, each MDA, in collaboration with all major stakeholder groups, including other GoJ ministries, departments and agencies, develops a transformation plan, that relates their digitalization to the rest of the Government, and it is published and available to the public on their website and a central GoJ website.

3. Within 2 years of the DMIL public sector launch, each MDA develops and publishes a roadmap of legislation and regulations that will be updated to enable and support digital transformation.

4. Within 2 years of the DMIL public sector launch, each MDA develops and publishes a roadmap of services that they will be digitalizing.

Love to See
5. Within 3 years of DMIL public sector launch, each MDA will be involved in at least one formalized partnership with a non-public sector entity (academia, NGO, business) to incubate new technologies or innovative practices, or be a case study on embedding DMIL in operations.

6. Within 3 years of DMIL public sector launch, each MDA will have established a valuable and vibrant online community including representatives of all their important user / beneficiary groups, other important stakeholder groups, as well as experts, which functions as an important mechanism for the collaborative governance arrangements of the MDA.

6.1.2 Productive Sector Channel

Expect to See

1. Within 2 years of the Productive Sector DMIL launch, each Vision 2030 industry panel will constitute an Advisory Group including MSMEs, large firms, innovators, scientists and academics, to develop a plan to evolve the digital ecosystem centered on their industry, to join the top global half within 5 years and the top quintile within 10 years.

Like to See

2. Within 2 years of the Productive Sector DMIL launch, each NCTVET Industry Lead Group develops sector-specific extensions, curricula, open assessment and training materials based on the DMIL Competency Model and deploys training for all economic sector members and those who wish to join the sector.

3. Within 2 years of the Productive Sector DMIL launch, the NCTVET Industry Lead Groups develop and deploy national micro-credentialing scheme to accompany courses in digital leadership, R&D, continuous improvement and innovation management targeted at managers, executives, innovators and other members of the innovation ecosystem.

4. Within 2 years of the Productive Sector DMIL launch, the DBJ publishes accredited technology stacks and toolchains to guide technology-adoption by MSMEs in each industry, and provides business support vouchers for same.

5. Within 1 year of the Productive Sector DMIL launch, the DBJ publishes data protection and cybersecurity measures for MSMEs to build trust along their entire supply chain, and provides business support vouchers for same.

6. Within 2.5 years, the DBJ publishes easy-to-use frameworks for MSMEs to partner with each other or larger firms and appropriate training, to encourage partnerships aimed at incubating new technologies and innovative practices.

6.1.3 Education & Training Channel

Expect to See

1. Within 18 months of DMIL education sector launch, the Ministry of Education will ensure that in each public early childhood and primary school, school leaders, administrators and teachers have access to modern, fully functional computers for school management and teaching at a minimum ratio of one computer to three teachers, beginning with remote schools, then rural schools, and then urban schools.

2. Within 18 months of DMIL education sector launch, the Jamaica Teaching Council begins offering an accredited set of DMIL courses for continuing education credit, re-licensure and micro-credentials (badges).

3. Within 2 years of DMIL education sector launch, the National Education Inspectorate incorporates assessment of digital pedagogies into its

inspection criteria and begins to create a national baseline of school performance. The NEI publishes periodic reports of disaggregated schools' performance online.

4. Within 1 year of DMIL education sector launch, the Ministry of Education rolls out a platform and quality assurance mechanisms to facilitate crowdsourced development of lesson plans and materials that integrate DMIL into the National Standards Curriculum.

5. Within 2 years of DMIL education sector launch, the Jamaica Tertiary Education Commission (J-TEC) accredits badged courses for teacher educators and requires all teacher educators to earn 15 university credits in DMIL within 3 years.

Love to See

6. Within 2 years of DMIL education sector launch, the Jamaica Tertiary Education Commission recommends digitally enhanced curricula for all academic and vocational subjects in the teacher-training institutions it regulates.

7. Within 2 years of DMIL education sector launch, the JTC requires all in-service-teachers to earn 15 university level credits in DMIL within 3 years.

8. Within 3 years of DMIL education sector launch, the JTC requires each teacher to maintain an online teaching portfolio.

9. Within 3 years of DMIL education sector launch, the Ministry of Education begins to assess and report on the digital skills of specific year groups of students annually.

10. Within 3 years of DMIL education sector launch, the Ministry of Education requires school principals to include an assessment of teachers' digital competences and teaching practices in the annual evaluation exercise, for a report of the evaluation to be tabled by the School Board, and discussed with the Ministry of Education's Regional Office.

6.1.4 Communities & Civil Society Channel
Expect to See

1. Within 6 months of DMIL community launch, create registers for persons to indicate their interests and needs through existing community facilities such as post offices, health clinics, churches, community centres and libraries, with the option to indicate which of several marginalised groups they may belong to. Electronic registration through SMS, a website, and app, should also be available.

2. Within 6 months of DMIL community launch, each community publishes a monthly updated list of learning, training, practicing, and funding opportu-

nities for community members.

3. Within 12 months of DMIL community launch, each community has published the phone numbers, email addresses and instant message handles of the digital champions who will respond to questions about training and funding opportunities and other aspects of sustainable community transformation.

4. Within 18 months of DMIL community launch, each community has appointed digital champions who have achieved at least 3 DMIL credits in supporting local economic initiatives and 3 credits in leading sustainable community transformation.

Like to See

5. Within 2 years of DMIL community launch, each community identifies one or more community facilities for persons to come together physically and digitally to learn, practice, and make, whether individually or in groups.

6. Within 2 years of DMIL community launch, each community offers regularly scheduled training sessions in digital business and digital, media and information literacy.

7. Within 2 years of DMIL community launch, each community has regular meetings in which they prepare positions to be put to the central and local government representatives in the appropriate fora.

8. Within 2 years of DMIL community launch, each community has regular meetings in which they prepare positions to be put to community-based organisations including the Church, schools, telecom services providers, media firms and other organisations.

Love to See

9. Within 3 years of DMIL community launch, each community is publishing online community-relevant content at least once a week.

10. Within 2.5 years of DMIL community launch, each community has developed and submitted at least one funding proposal request (to the standard expected of an MBA graduate of the Mona School of Business & Management) to upgrade the traditional or digital infrastructure of the community.

11. Within 3 years of DMIL community launch, rural and remote communities have established, with a sustainable business model, one or more local businesses that enable and sustain the community's digitalization.

6.2 Strategies

6.2.1 Public Sector Channel

1. Review legislation and regulations to improve internet governance in the areas of cybersecurity, ICT regulatory environment, provisions for persons with disabilities, and the legal framework's adaptability to emerging technologies.

2. Develop new mechanisms and practices to enable each MDA to participate in collaborative governance arrangements with important stakeholder groups, especially intended beneficiaries.

3. Develop a new regulatory structure to support transparency and good governance in the development of joint ventures and partnerships between startups or other businesses and MDAs.

4. Deliver training in digital leadership to managers, HR & Training teams.

5. Deliver digital literacy training to all public service employees and contractors.

6. Develop and nurture an online network of mentors and coaches to support digital transformation.

7. Pass and promote a new government policy to increase the digital leadership competences of public sector leaders and HR teams.

8. Pass and promote a new government policy to increase the digital literacy competences of all public sector workers.

9. Require each MDA to create a digital transformation plan.

10. Implement a stakeholder engagement strategy to highlight the digital services and regulations roadmaps being produced by each MDA.

11. Develop and nurture an online network of public sector workers to facilitate peer-to-peer learning and problem solving.

12. Publish a quarterly updated dashboard of monitoring indicators so that all citizens can see how the transformation is progressing.

13. Present the connections between the digital transformation of the public service and other aspects of the digital transformation of the economy and society by collecting data for and publishing at least once every two years:

14. the Inclusive Digital Economy Scorecard

15. all the indicators of the Partnership for Measurement of ICT for Development.

6.2.2 Productive Sector Channel

1. Develop and deploy a national micro-credentialing scheme to accompany courses in digital leadership, R&D, continuous improvement and innovation management targeted at managers, executives, innovators and other members of the innovation ecosystem.

2. Develop industry-specific extensions, curricula, open assessment and training materials based on the DMIL Competency Model and deploy training for all industry members and those who wish to join. Materials should be developed to ensure that they are accessible to persons with disabilities.

3. Develop and nurture an online network of technology, innovation and business support experts to support MSMEs and other innovation ecosystem members.

4. Pass new laws and regulations to incentivize MSMEs, innovators and large firms to invest in R&D, and adopt new technologies and innovative practices to increase their level of global competitiveness.

5. Using an inclusive and participatory approach, industry members including MSMEs, business support organisations, academic experts, and innovators should develop a digital transformation plan for the entire ecosystem, inclusive of a technology-adoption roadmap, and the adoption of measures (such as cybersecurity and data protection) to build trust throughout the supply network.

6. Enact government policies to facilitate and encourage the development of digital leadership, continuous improvement, R&D and innovation management in Jamaica's entrepreneurs and management cadre, and digital literacy throughout the workforce.

7. Develop and nurture an online network for MSMEs and other innovation ecosystem members to problem-solve together and provide mutual support.

8. Publish a quarterly updated dashboard of monitoring indicators so that all citizens can see how the transformation is progressing.

9. Present the connections between the digital transformation of the economy and other aspects of the digital transformation of the society by collecting data for and publishing at least once every two years:

10. the Inclusive Digital Economy Scorecard

11. all the indicators of the Partnership for Measurement of ICT for Development.

6.2.3 Education & Training Channel

1. Develop and disseminate lesson plans and materials that integrate digital literacy into each subject and grade level of the National Standards Curriculum. Materials should be developed to ensure that they are accessible to persons with disabilities.

2. Install computers and other information management equipment for school management, digital teaching and learning, and establish maintenance contracts.

3. Develop and deliver courses on digital academic leadership for principals, school leaders, and Education Officers.

4. Develop and deliver digital literacy courses for the continuing education and licensure of in-service teachers.

5. Develop and deliver new digital literacy curricula for each subject and specialisation in teacher-training institutions.

6. Develop and nurture an online network where Education Officers and Core Curriculum Officers provide support for the digital journeys of JTC-licensed teachers (public and private schools).

7. Implement an annual national assessment of students' digital literacy at appropriate grades.

8. Require all public school principals to submit annual digital literacy school improvement plans.

9. Develop and nurture an online network for JTC-licensed teachers to co-develop lesson plans and materials, exchange ideas, and solve teaching and learning issues together.

10. Publish a quarterly updated dashboard of monitoring indicators so that all citizens can see how the transformation is progressing.

11. To enable global comparability of Jamaica's progress in the digital transformation of Education and Training, collect and publish at least every two years, data for the indicators globally agreed upon and shepherded by the United Nations, i.e.: all the indicators of the Partnership for Measurement of ICT for Development.

6.2.4 Communities & Civil Society Channel

1. Train parish councilors, other elected and local government officials on how to develop sustainable communities.

2. Train and certify community leaders and social entrepreneurs to lead the transformation of sustainable communities that are inclusive of persons with disabilities.

3. Develop and nurture an online network of experts in digital business, U4SSC and Inclusive Digital Ecosystems to mentor and coach social entrepreneurs and community leaders.

4. Identify and group the needs of the most vulnerable communities.

5. Identify funds to support entrepreneurial activities that will develop communities' digital capacity.

6. Promote the value of the CRP's M&E Framework, U4SSC and Inclusive Digital Ecosystems.

7. Promote and disseminate the results of the annual conference on Smart Cities at the UWI Western Jamaica Campus.

8. Develop and nurture an online network of social entrepreneurs and community leaders set up to encourage and facilitate peer-to-peer learning and problem solving.

9. Publish a quarterly updated dashboard of monitoring indicators so that all citizens can see how the transformation is progressing.

10. To enable global comparability of Jamaica's progress in the digital transformation of communities and civil society, collect and publish at least every two years, data for the indicators globally agreed upon and shepherded by the United Nations, i.e.:

   • all the indicators within the United for Smart Sustainable Cities (U4SSC) framework

   • all the indicators of the Inclusive Economy Scorecard and the Partnership for Measurement of ICT for Development.

Policy Implementation

7.1 Organisational Structure

An initiative of this breadth and ambition will need an extremely capable and credible champion within the Government of Jamaica. The Broadcasting Commission of Jamaica has already demonstrated its credibility within this arena and should be resourced to more effectively execute this role in a manner similar to OFCOM in the United Kingdom.

Because the Communities & Civil Society channel is so decentralised relative to the other 3 channels, at least two different organisational structures for implementation should be considered.

1. For the Communities & Civil Society channel, the policy recommendation is that a lead agency within the government is identified to coordinate the design and integration of programme activities with the wide variety of ecosystem players which will be present at any time.

2. For the other 3 channels, the policy recommendation is that a Programme Execution Unit (PEU) be established within an Executing Agency (for example, the Office of the Prime Minister). Further, for each Implementation Channel there will be an Advisory Council.

In both organisational structures, there will be a central team of persons working on policy implementation full-time, co-opting and coordinating all the necessary resources to execute the Annual Work Plan they developed. There should be at least one officer with direct responsibility for each Implementation Channel. Other officers with responsibility for communication, procurement and other support functions may be shared across Implementation Channels. The Advisory Council for each implementation channel is made up of those stakeholders who are most able to provide up-to-date actionable information, credibility, relationships, and other organisational resources to maximise strategies to meet the actual needs of the policy area.

However, for the Communities & Civil Society Channel, the programme officers are civil servants assigned to the lead agency, whereas in the PEU, the programme officers need not be civil servants. The Executing Agency provides a physical home for the PEU and the profile needed to maximise cooperation across Government.

7.2 Advisory Council for Public Sector

Entity Role	Responsibilities
Office of the Prime Minister / Broadcasting Commission of Jamaica *Champion the vision of a human-centred whole-of-society digital transformation*	Lead the following strategies: 1. Develop new mechanisms and practices to enable each MDA to participate in collaborative governance arrangements with important stakeholder groups, especially intended beneficiaries 2. Collect, analyse and publish data to monitor project activities in policy implementation Support the following strategies: 1. Collect, analyse and publish data to evaluate policy implementation
Management Institute for National Development (MIND) *In alignment with the Public Sector Learning & Development Framework, lead the delivery of digital leadership and digital literacy training to public sector workers.*	Lead the following strategies: 1. Deliver digital leadership training 2. Deliver digital literacy training
Transformation Implementation Unit (TIU) *Lead the whole-of-government approach to digitalization of the public sector.*	Lead the following strategies: 1. Develop network of coaches and mentors 2. Champion digital leadership in government policy 3. Champion digital literacy in government policy 4. Develop Digital Transformation Plans for MDAs 5. Implement stakeholder engagement strategy 6. Develop network of public sector workers Support the following strategies: Collect, analyse and publish data to monitor project activities in policy implementation
National ICT Advisory Council (NICTAC) *Coordinate and champion the development of appropriate laws and regulations to create a supportive environment for digitalization of the public service.*	Lead the following strategies: 1. Pass laws & regs to improve internet governance 2. Develop regs to support joint ventures

eGov	Support the following strategies:
Support the development of advanced digital capabilities among public sector workers through networking, mentoring, and coaching.	1. Develop network of coaches and mentors 2. Network of public sector workers
STATIN *Across the public sector, collect and publish evaluation data at predetermined periods to facilitate periodic course correction and international comparisons.*	Lead the following strategies: 1. Collect, analyze and publish data to evaluate policy implementation Support the following strategies: 1. Collect, analyze and publish data to monitor project activities in policy implementation

7.3 Advisory Council for Productive Sector

Entity Role	Responsibilities
Office of the Prime Minister (OPM) / Broadcasting Commission of Jamaica *Champion a whole-of-government approach to the promotion of DMIL in the Jamaican workforce.*	Lead the following strategies: 1. Coordinate a whole-of-government approach to the development and implementation of policies to support digital upskilling and re-skilling 2. Collect, analyse and publish data to monitor project activities in policy implementation Support the following strategies: 1. Collect, analyse and publish data to evaluate policy implementation
Private Sector Organization of Jamaica (PSOJ), SBAJ, MSME Alliance, and YEA	Lead the following strategies: 1. Develop the coordination, collaboration and operational capacities for each economic sector and subsector to make them more capable of contributing to the development of appropriate sector-specific digital transformation plans.

Vision 2030 Sector Panels, PIOJ *Lead the development of plans to digitally transform Jamaica's industries and business ecosystems.*	Lead the following strategies: 1. Develop a digital transformation plan for each industry and ecosystem 2. Develop an industry-specific technology-adoption roadmap 3. Develop trust building measures, including data protection and cyber-security practices, for implementation throughout each industry's supply network Support the following strategies: 1. Collect, analyse and publish data to monitor project activities in policy implementation.
Jamaica Center for Tourism Innovation, Sector Skills Councils and analogous entities	Support the following strategies: 1. Contribute sector-specific knowledge and resources to develop career pathways, competence matrices, and occupational-based competency training that is responsive to sector needs for digital competences
Ministry of Finance *Lead the development of new policies, laws and regulations to incentivize R&D investments, business partnerships and other innovative strategies to improve the global competitiveness of Jamaica's industries.*	Lead the following strategies: 1. Develop new laws, policies and regulations to incentivize R&D investment, business partnerships and other corporate strategies to incubate and support innovation.
Development Bank of Jamaica (DBJ) *Harness its experiences and capabilities of working with MSMEs, entrepreneurs and other innovation ecosystem members to support the ecosystem assessment and planning work being led by the Vision 2030 Sector Panels.*	Lead the following strategies: 1. Develop and nurture a network for MSMEs and other innovation ecosystem members. Support the following strategies: 1. Develop and nurture an online network of technology, innovation and business support experts to support MSMEs and other innovation ecosystem members.

JAMPRO *Support the BCJ in the development and promotion of policies that promote very high levels of digital, media and information literacy throughout the Jamaican workforce.*	Lead the following strategies: 1. Develop and nurture an online network of technology, innovation and business support experts to support MSMEs and other innovation ecosystem members. Support the following strategies: 1. Develop and nurture a network for MSMEs and other innovation ecosystem members.
HEART NSTA *Lead the design and development of all the teaching-learning, assessment, and credentialing processes and materials needed to digital upskill and re-skill the workforce.*	Lead the following strategies: 1. Develop and deploy a national micro-credentialing scheme to accompany courses in digital leadership, R&D, continuous improvement and innovation management 2. Develop industry-specific extensions, curricula, open assessment and training materials based on the DMIL Competency Model 3. Deploy training for all industry members and those who wish to join
STATIN *Collect and publish evaluation data at predetermined periods to facilitate periodic course correction and international comparisons.*	Lead the following strategies: 1. Collect, analyse and publish data to evaluate policy implementation Support the following strategies: 1. Collect, analyse and publish data to monitor project activities in policy implementation

7.4 Advisory Council for Education and Training

Entity Role	Responsibilities
Office of the Prime Minister (OPM) / Broadcasting Commission of Jamaica *Champion the vision of a human-centred whole-of-society digital transformation*	Lead the following strategies: 1. Develop the collaborative governance capacities of the education system and ensure continued alignment among the education system, the society, economy, and public service 2. Collect, analyse and publish data to monitor project activities in policy implementation Support the following strategies: 1. Collect, analyse and publish data to evaluate policy implementation
Ministry of Education (MoE) *Lead the comprehensive digitalization of schools and the supporting infrastructure to make digital teaching and learning attractive for teachers, students and their guardians.*	Lead the following strategies: 1. Develop lesson plans 2. Develop network of digital coaches 3. Implement annual national assessment of digital literacy 4. Require annual digital literacy school improvement plans 5. Implement a stakeholder strategy 6. Develop peer-to-peer network Support the following strategies: 1. Collect, analyse and publish data to monitor project activities in policy implementation
National College for Educational Leadership *Prepare principals and other school leaders to use ICTs competently for school management and academic leadership.*	Lead the following strategies: 1. Deliver courses on digital academic leadership
Jamaica Teaching Council *Regulate the (re-)licensing of in-service teachers such that they are well-prepared to use digital pedagogies and technologies.*	Lead the following strategies: 1. Deliver digital literacy courses for teachers' re-licensing

Jamaica Tertiary Education Commission *Regulate teacher training institutions to ensure that teachers-in-training are well pre-pared to use digital pedagogies and technologies.*	Lead the following strategies: 1. Develop subject-specific digital literacy curricula
Early Childhood Commission	Lead the following strategies: 1. Integrate teacher-use of appropriate ICTs to manage classes and support student learning.
National Parenting Support Commission	Lead the following strategies: 1. Support parents becoming more effective models of good digital citizenship 2. Equip parents to nurture their children to become good digital citizens 3. Equip parents to protect their children from digital harms
National Parent Teachers Association	Make appropriate interventions in the development of strategies affecting children to ensure that those strategies comply with relevant national and international treaties and guidelines regarding children.
National Secondary Students Council	Provide the views of secondary school students in the development of strategies affecting students.
Jamaica Union for Tertiary Students	Provide the views of tertiary school students in the development of strategies affecting students.
Jamaica Association of Principals of Secondary Schools, and the Association of Principals and Vice Principals	Make appropriate interventions in the development of strategies affecting kindergarten to secondary education to ensure that those strategies:
Jamaica Teachers' Association	1. are properly informed by the realities of Jamaican classrooms, schools, school communities, teachers and teacher-training
Jamaica Independent Schools Association	2. draw upon the full range of resources available to our school communities to transform our classrooms, schools, and school communities to make the best use of digital media and information while avoiding the harms.

|	
PATH (MLSS)	Make appropriate interventions in the development of strategies to ensure that those strategies: 1. equitably consider the greater needs of PATH beneficiaries and their families, and the schools they attend 2. provide more resources on a per capita basis to PATH beneficiaries and their families and the schools they attend 3. are informed by the existing structures to monitor and meet the needs of PATH beneficiaries
HEART NSTA	Lead the following strategies: 1. Develop curricula to meet the DMIL needs of post-secondary education students 2. Accredit and monitor training institutions to deliver DMIL training to post-secondary education students
E-Learning Jamaica *Provide more ICTs to schools for administrative and academic use.*	Lead the following strategies: 1. Give schools more computers and relevant software
CCCJ, UCJ	Support the following strategies: 1. Advocate for the integration of DMIL into tertiary education.
Universities, colleges, other post-secondary education institutions	Lead the following strategies: 1. Integrate DMIL into post-secondary education.
Vision 2030 Sector Panel *Support the collaborative governance of the education sector*	Lead the following strategies: 1. Collect, analyze and publish data to monitor project activities in policy implementation
STATIN *Collect and publish evaluation data at predetermined periods to facilitate periodic course correction and international comparisons.*	Lead the following strategies: 1. Collect, analyze and publish data to evaluate policy implementation Support the following strategies: 1. Collect, analyze and publish data to monitor project activities in policy implementation

7.5 Communities & Civil Society Channel

Entity Role	Responsibilities
Office of the Prime Minister (OPM) / Broadcasting Commission of Jamaica *Champion the vision of a human-centred whole-of-society digital transformation*	Lead the following strategies: 1. Develop the collaborative governance capacities of communities and local government 2. Ensure continued alignment among the education system, the society, economy, and public service Support the following strategies: 1. Collect, analyze and publish data to monitor project activities in policy implementation 2. Collect, analyze and publish data to evaluate policy implementation
Social Development Commission (SDC) *Lead and coordinate human capacity development for community organizers and social entrepreneurs.*	Lead the following strategies: 1. Train community organizers 2. Develop network of U4SSC and Inclusive Digital Ecosystem coaches 3. Develop a network for peer-to-peer support 4. Collect, analyze and publish data to monitor project activities in policy implementation
Ministry of Local Government (MLG) *Mandate the training of local government officials in the development of smart community infrastructure, collaborative governance, and inclusive digital ecosystems.*	Lead the following strategies: 1. Train local government officials
Planning Institute of Jamaica (PIOJ) *Function as an observatory on community infrastructure, needs, and resources.*	Lead the following strategies: 1. Identify community needs Support the following strategies: 1. Identify funds to develop communities' digital capacities

Development Bank of Jamaica (DBJ) *Provide funding to help communities develop their digital capacities.*	Lead the following strategies: 1. Identify funds to develop communities' digital capacities
Broadcasting Commission of Jamaica (BCJ) *Implement stakeholder strategy to promote the transformation of smart communities.*	Lead the following strategies: 1. Implement stakeholder strategy
Management Institute for National Development (MIND) *Guided by the SDC and MLG, coordinate the training of local government officials, community organizers and social entrepreneurs.*	Support the following strategies: 1. Train local government officials 2. Train community organizers
Western Jamaica Campus, The UWI, Mona (WJC) *Assemble global experts in smart community development to share research on best practices in smart community development and examine Jamaica's progress.*	Lead the following strategies: 1. Promote annual conference on smart communities
STATIN *Collect and publish evaluation data at predetermined periods to facilitate periodic course correction and international comparisons*	Lead the following strategies: 1. Collect, analyze and publish data to evaluate policy implementation Support the following strategies: 1. Collect, analyze and publish data to monitor project activities in policy implementation

Monitoring and Evaluation Framework

The Focus of Monitoring and Evaluation
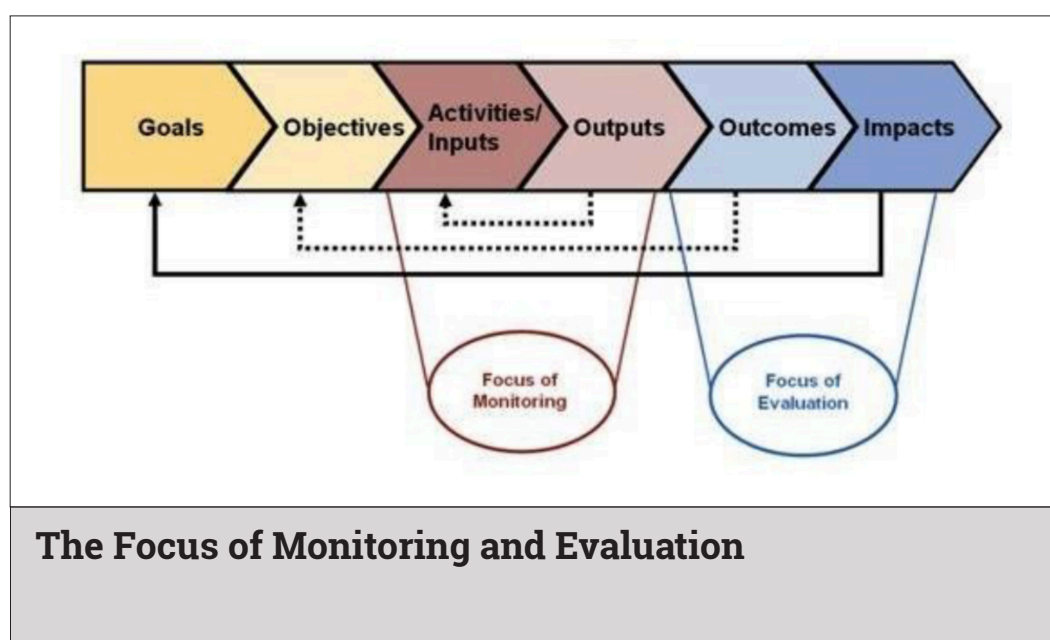
8.1 Monitoring

This document will not discuss Monitoring at any length because the focus of monitoring, that is, key Activities / Inputs, Outputs and Indicators should be progressively elaborated by the implementing project team as part of the Scope Management and Quality Management processes. If the policy is to be implemented in a human-centred fashion, the appropriate Activities cannot be known months in advance as they have to be very sensitive to the specific context of that time and place. Therefore, it is inappropriate to speculate what these Activities and their Outputs should be and how they should be monitored in a policy framework such as this.

8.2 Evaluation

DMIL Activities will interact with other aspects of the environment to affect digital, media and information literacy within the Jamaican population. It is imperative that a national survey of Digital, Media and Information Literacy based on the DMIL National Baseline instrument is conducted annually to ascertain the pace at which the objective of higher digital, media and information literacy is being met. The survey instrument should be updated each year to:

1. accommodate changes in how DMIL is conceptualised in the scholarly literature,
2. accommodate changes in how DMIL is being measured globally,
3. indicate DMIL programme interactions with other social, educational, economic and technological changes,
4. maintain enough commonality to measure ipsative progress within Jamaica.

The Partnership on Measuring ICT for Development has a comprehensive set of indicators that STATIN is committed to collecting and reporting to the ITU periodically. These indicators should be used in the evaluation of all four policy areas of DMIL policy.

Issues for Mainstreaming

The efficacy of the design and implementation of a policy is often confronted with the reality of adoption and abysmal measured change. So much so that public policy failure is considered ubiquitous within a global context. Most contemporary authors on the issue attribute this failure to the nature of public policy as a complex system that simply has too many moving parts, most of which are immeasurable or measured with too little frequency (Mueller 2020).

In addition to these critiques, most authors identify the Lucas Critique (Ljungqvist, 2018), Goodhart's Law (Goodhart, 1981) and public reactivity (Frey, 2017) as key vectors for policy failure. The recommended mainstreaming strategies attempt to address these three critiques specifically.

Strategy 1: Design for Adoption and Adaptation using Participatory Approaches

In order to successfully mainstream the policy, the implementation phase must have deep participation by those whom the policy intends to affect. By using participatory approaches in the design of the implementation phase the policy accrues trust equity and the implementing bodies gain access to tacit knowledge; both fuel the eventual adoption of the implemented policy.

Further, by using participatory approaches, key influence groups that move adaptation through the early stages of the diffusion of innovation curve towards critical mass, begin to emerge. That is, by allowing for, giving attention to and actively responding to feedback from special groupings, the design of the implementation gains the flexibility to be adapted by those groups and continue outside and beyond the initial push of the public implementing bodies. In this way success is achieved by not only acknowledging the inevitability of public reactivity but purposefully designing for it and leveraging it for greater adoption. In summary, design implementation to be taken on by smaller groups who will shape the process for greatest efficacy within their own constituencies.

Strategy 2: Leverage Minimum Viable Product (MVP) perspectives during implementation and avoid "Pilotitis"

Public policy implementation by nature is a complex system that entreats the involvement of as many stakeholders during implementation as possible. However, this actually opens the implementation process to greater vulnerability to reactivity. Instead, the approach should be to design with as many stakeholders as possible, but to limit the implementation executed by the implementing bodies, while allowing the smaller groups to adapt and implement on their own. This limitation should serve to bring the policy implementation well within the implementing bodies' capacity to monitor and evaluate with the precision and frequency to mitigate and avoid failure. Further, the ongoing implementation by self-run smaller groups will drive additional data into the monitoring process - allowing for more informed decision-making and future-proofing.

Strategy 3: Success as an assessment of culture rather than a measurement of practice

In recognition of Goodhart's Law, and the attempt to avoid the same, the measurement of practice and competence should not become the target of the policy. Instead the policy must consider the systems of thought that drive the measured behaviours and seek to change those. Therefore mainstreaming (as a part of implementation) should actively address some of the key cultural elements implicated by the findings of the baselines study:

- **Exposure to digital devices**
  Implementing bodies must seek to actively facilitate the ready and continuous exposure of the majority of Jamaicans to digital devices such as desktop and laptop computers, as well as tablets.

- **Expansion of digital beyond communication and the Internet to business, citizenship and lifestyle**
  Implementing bodies must tie the above exposure to purposive interaction based on active daily participation in society. The context of use and exposure is equally important as the existence of that use and exposure.

- **Expect resistance to change**
  It is a well-known secret that a large portion of what is viewed as corruption within Jamaica emanates from the paltry systems currently in place for many public services. The shift to digital will require the move away from information to granular data; from paper (which is easily lost or destroyed) to electronic media (which are considered more permanent due to the ease with which multiple copies are created); and finally the shift away from confusion towards traceability - which will near guarantee accountability. These drastic changes in the way people at all levels and intentions do business and live their lives will face immediate and strong resistance. This resistance will more likely than not extend the change period dramatically, and as such implementing bodies must design the implementation of this policy as incremental with effects accumulating over an extended period.

References

Agrawal, A., Gans, J., & Goldfarb, A. (2023, June 12). *The Turing Transformation: Artificial Intelligence, Intelligence Augmentation, and Skill Premiums.* Brookings Institute. https://www.brookings.edu/wp-content/uploads/2023/06/20230612_CRM_Agrawaletal_TurningTransformation_FINAL.pdf

Aiken, R. & Greaves, L. L. (2021). *An approach to Inclusive Development of the Caribbean Communities by securing local participation throughout the project lifecycle.* Caribbean Development Bank. https://www.caribank.org/sites/default/files/publication-resources/CDB_CommunityEngagementGuidanceNote_Pages_Final_Revised%2818.11.21%29.pdf

Brynjolfsson, E. (2021, May 20). *Augmentation, Not Automation.* Boston Review. https://www.bostonreview.net/forum_response/augmentation-not-automation/

Brynjolfsson, E., Mitchell, T., & Rock, D. (2018). What Can Machines Learn and What Does It Mean for Occupations and the Economy? *AEA Papers and Proceedings*, 108, 43–47. https://doi.org/10.1257/pandp.20181019.

Clayton, A., & Green, C. (2018). *Policy Paper: Content Regulation in the Fourth Industrial Revolution.* Broadcasting Commission of Jamaica.

Coward, C., & Fellows, M. (2018). *Digital Skills Toolkit.* International Telecommunication Union.

Frey, B.S. (2017). Reactivity in Economic Science (CESifo Working Paper No. 6593).

Global Innovation Index. (2019). *Creating Healthy Lives - The Future of Medical Innovation.* Cornell University, INSEAD, World Intellectual Property Organization.

Golding, P. (2018). *Young Jamaicans in a Hyper-Connected World: Life Online.* University of Technology, Jamaica.

Goodhart, C. (1981). Problems of monetary management: the U.K. experience. In A.S. Courakis (Ed.), *Inflation, Depression, and Economic Policy in the West* (pp. 111-146). Rowman & Littlefield.

Law, N., Woo, D., de la Torre, J., & Wong, G. (2018). *A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2.* UNESCO Institute for Statistics (UIS/2018/ICT/IP/51). http://uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf.

Ljungqvist, L. (2008). Lucas critique. In S. N. Durlauf & L. E. Blume (Eds.), *The New Palgrave Dictionary of Economics.* Palgrave Macmillan.

Mueller, B. (2020). Why public policies fail: Policymaking under complexity. Economica, 21(2), 311-323.

Ojanperä, S., Graham, M., & Zook, M. (2019). The Digital Knowledge Economy Index: Mapping Content Production. *Journal of Development Studies 55*(12): 2626–43. https://doi.org/10.1080/00220388.2018.1554208.

Principles. (n.d.). Principles for Digital Development. https://digitalprinciples.org/principles/

Ross, J.W., Beath, C.M., & Mocker, M. (2019). *Designed for digital: How to architect your business for sustained success.* MIT Press.

Schwab, K. (2019). *The global competitiveness report 2019*. World Economic Forum.

Sharma, A., & Lucini, B.A. (2016) *Connected society: Digital inclusion in Latin America and the Caribbean*. GSMA Intelligence.

Social Progress Index. (2019). https://www.socialprogress.org

A Model of Digital, Media and Information Literacy Competences

The core component of the National DMIL Framework is the competency model which was developed as a synthesis of two highly regarded and widely adopted UNESCO global frameworks for digital, media and information literacy - the Digital Literacy Global Framework (DLGF) and the Global Media and Information Literacy Assessment Framework (GMIL).

About DLGF1

DLGF is derived from the European Digital Competence Framework for Citizens, also known as DigComp2. DigComp was developed by the European Commission's science and knowledge service in response to the 2006 declaration by the European Parliament that digital competence for all European citizens is necessary for personal fulfillment, active citizenship, social cohesion and employability in a knowledge society. In 2018, UNESCO set out to develop a methodology to serve as a foundation for addressing Sustainable Development Goal thematic Indicator 4.4.2 "Percentage of youth/adults who have achieved at least a minimum level of proficiency in digital literacy skills." As a result of their extensive research of regional, national and sub-national frameworks across more than forty countries, with special attention to the needs of developing countries, they decided that an extended form of DigComp would be most appropriate as a global framework, resulting in the DLGF.

About GMIL3,4

In an effort to minimize the degree of marginalization (digital divide) and create opportunities for more persons to benefit from the media and ICT revolution of the past two decades, UNESCO has promulgated the Global Media and Information Literacy Framework (GMIL). GMIL provides a strategic policy framework to

ensure all citizens are equipped with media and information competences. GMIL comprises three Components/Competency elements ("Access and Retrieval", "Understanding and Evaluation","Creation and Utilization"), which are progressively disaggregated into Subject Matters, and Performance Criteria. According to UNESCO, these elements are targeted at all citizens, but with a special emphasis on teachers in service and in training.

The comparative analysis and synthesis of the two frameworks has resulted in the DMIL Model structure and Competence Units illustrated in figs A1 and A2 and Table A1.

While it's relevance and applicability as a national framework will serve multiple constituencies including Education and Training, Industry, Science and Technology sectors, the DMIL Competence model will be particularly relevant to the business community as a component of occupational competences, given the transversal nature of Digital Competencies in almost every occupation in the modern workplace.

As a specific sector illustration of this approach, digital competency is increasingly relevant in Policing. According to a recent report (2016) by England-based "Her Majesty's Inspectorate of Constabulary (HMIC)":

> *Working digitally is necessary for efficient and effective policing. Increasingly, the public expects to be able to access services online, and digital skills are becoming an increasingly important part of police work, not least in the investigation of crime*

The Austrian police school has included the European Certificate for Digital Literacy (ECDL) in its curricula– which covers all the competency domains in the DLGF framework. Since 2018 every upcoming police-man /woman receives the ECDL certificate during his/her apprenticeship focusing on IT security, computational (critical/problem-solving) thinking and basic digital literacy.

In current related work that MSBM is doing with the National Police College of Jamaica (NPCJ) to develop a competency-based framework for ICT and Data Analysis learning program design, we have adopted the nascent DMIL framework as a foundational competency model in this endeavor which not only anchors the competency framework in international UNESCO standards, but provides two convenient competency areas to facilitate adaptation:

- ▶ Competency Area 0 – Devices & Software Operations
  This will address basic ICT competencies – hardware, software – and allow for situating basic competency (knowledge/skills) needs of the core ICT systems currently being implemented

- ▶ Competency Area 6 - Domain-related Competencies
  This will address more Specialist / Job-related competencies such as: Cyber-Security; ICT & Data for Crime Analysis; ICT & Data Law Enforcement Intelligence Analysis.

Overview of the DMIL Model Structure

0 Devices and Software Operations

1 Media, Information and Data Literacy

2 Communication vand Collaboration

3 Digital Content Creation

4 Safety

5 Problem Solving

6 Career-Related Competences

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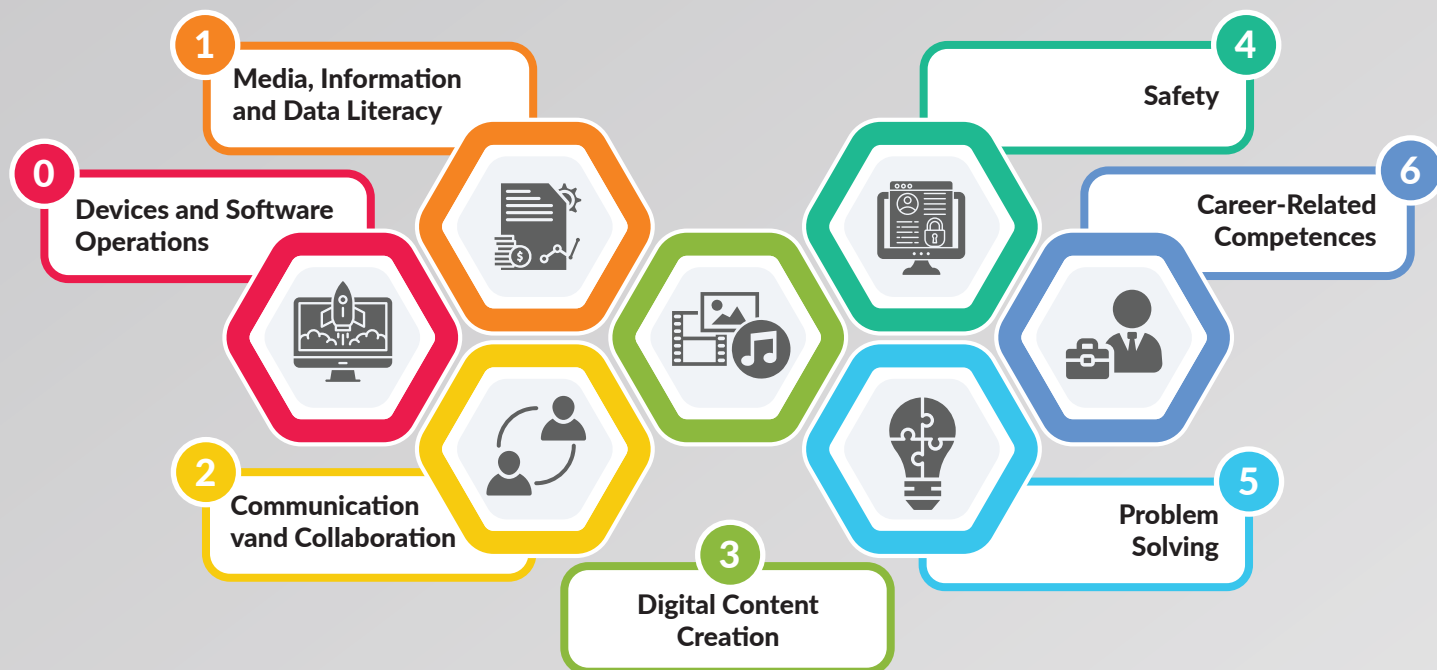
0 **Devices and Software Operations**

To identify and use hardware tools and technologies. To identify data, information and digital content needed to operate software tools and technologies.

1 **Media, Information and Data Literacy**

To articulate information needs, to store, manage, organize, locate and retrieve digital data, information, media and content. To understand the role, functions, norms and potential impact of media and information institutions and ecosystems.

2 **Communication and Collaboration**

To interact, communicate and collaborate through digital technologies while being aware of cultural and generational diversity. To participate in society through public and private digital services and participatory citizenship.

3 **Digital Content Creation**

To know how to give understandable instructions for a computer system. To create and edit media and digital content, and integrate same into an existing body of knowledge while understanding how copyright and licenses are to be applied. To monitor shared media and content and know the importance of monitoring media ownership, public relations services and lobbyists.

4 **Safety**

To protect devices, content, personal data and privacy in digital environments. To protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion. To be aware of the environmental impact of digital technologies.

5 **Problem Solving**

To identify needs and problems and to resolve conceptual problems and problem situations in digital environments. To use digital tools to innovate processes and products. To keep up to date with the digital and media evolutions.

6 **Career-Related Competences**

To operate specialised digital technologies and to understand, analyse and evaluate specialised data, information, media and digital content for a particular field.

Figure A1

The DMIL Model has seven Competence Areas which is succinctly outlined by a corresponding Competence Description.

Model of DMIL Competences

0 Devices and Software Operations
- 0.1 Physical operations of digital devices
- 0.2 Software operations in digital devices

1 Media, Information and Data Literacy
- 1.1 Accessing needed data, information, media and digital content as well as media and information providers.
- 1.2 Evaluating data, information, media and digital content, their sources and providers
- 1.3 Understanding of information and media
- 1.4 Managing data, information, media and digital content

2 Communication and Collaboration
- 2.1 Sharing and interacting through digital technologies
- 2.2 Engaging in citizenship through digital technologies
- 2.3 Collaborating through digital technologies
- 2.4 Netiquette

3 Digital Content Creation
- 3.1 Developing media and digital content
- 3.2 Integrating and re-elaborating media and digital content
- 3.3 Monitoring influence of information, media content, knowledge production and use as well as media and information providers
- 3.4 Copyright and licenses
- 3.5 Programming

4 Safety
- 4.1 Protecting devices
- 4.2 Protecting personal data and privacy
- 4.3 Protecting health and well-being
- 4.4 Protecting the environment

5 Problem Solving
- 5.1 Solving technical problems
- 5.2 Identifying needs and technological responses
- 5.3 Creatively using digital technologies
- 5.4 Identifying digital competence gaps
- 5.5 Computational thinking

6 Career-Related Competences
- 6.1 Operating specialised digital technologies for a particular field
- 6.2 Interpreting and manipulating data, information, media and digital content for a particular field

Model of DMIL Competences

Figure A2

Each Competence Area contains several Competences, ranging from as few as two to as many as five. There are twenty-six Competences each of which is further decomposed into several proficiency levels. These proficiency levels take the form of learning and performance objectives aligned with Bloom's taxonomy, designed to be helpful to teachers, trainers and parents developing learning, training, and assessment materials.

Table A1: DMIL Competences and Descriptors

Competence area	Competence Statement	Competence Descriptor
Devices and Software Operations	0.1 Physical operations of digital devices	"To identify and use the functions and features of the hardware tools and technologies.
	0.2 Software operations in digital devices	To know and understand the data, information and / or digital content that are needed to operate software tools and technologies.
Media, Information and Data Literacy	1.1 Accessing needed data, information, media and digital content as well as media and information providers.	To articulate information needs, to search for data, information, media and content in digital environments, to access and navigate among them. To create and update personal search strategies.
	1.2 Evaluating data, information, media and digital content, their sources and providers	To analyse, compare and critically evaluate the credibility and reliability of sources of data, information, media and digital content. To analyse, interpret and critically evaluate the data, information, media and digital content.
	1.3 Understanding of information and media	To understand principles and conditions necessary for media and information providers to fulfil their functions, recognize the impact of information and media content on oneself, understand the codes and genres of different media and information platforms, and the importance of advertisement in media and information providers.
	1.4 Managing data, information, media and digital content	To organise, store and retrieve data, information, media, and content in digital environments. To organise and process them in a structured environment.
Communication and Collaboration	2.1 Sharing and interacting through digital technologies	To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context. To share data, information, media and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices.

Communication and Collaboration	2.2 Engaging in citizenship through digital technologies	To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies.
	2.3 Collaborating through digital technologies	To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of data, resources, media and knowledge.
	2.4 Netiquette	To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments.
Digital Content Creation	3.1 Developing media and digital content	To create and edit digital content in different formats, to express oneself, including one's original thought, experimentation and/ or analysis, through digital means.
	3.2 Integrating and re-elaborating media and digital content	To modify, refine, improve and integrate information, media and content from a variety of formats such as print, audio, and video, into an existing body of knowledge to create new, original and relevant media, content, and knowledge.
	3.3 Monitoring influence of information, media content, knowledge production and use as well as media and information providers	To establish monitoring means / mechanisms and policies / instruments for periodical assessment of the effectiveness of intended impacts, and make judgements on shared information, media content and knowledge, such as quality, impact, and integrity of practices. To understand the functions and role of institutions providing public relations services and how these influence the audience and decision making.
	3.4 Copyright and licenses	To understand how copyright and licenses apply to data, digital information, media and content.
	3.5 Programming	To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task.
Safety	4.1 Protecting devices	To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have a due regard to reliability and privacy.

Safety	4.2 Protecting personal data and privacy	To create, and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services. To protect one's own work, personal data, civil liberties, privacy and intellectual property in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a "Privacy Policy" to inform how personal data is used.
	4.3 Protecting health and well-being	To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). To be aware of digital technologies for social well-being and social inclusion.
	4.4 Protecting the environment	To be aware of the environmental impact of digital technologies and their use.
Problem Solving	5.1 Solving technical problems	To identify technical problems when operating devices and using digital environments, and to solve them (from trouble-shooting to solving more complex problems).
	5.2 Identifying needs and technological responses	To assess needs and to identify, evaluate, select and use digital tools and possible technological responses and to solve them. To adjust and customize digital environments to personal needs (e.g. accessibility).
	5.3 Creatively using digital technologies	To use digital tools and technologies to create new information, media content or knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.
	5.4 Identifying digital competence gaps	To understand where one's own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.
	5.5 Computational thinking	To process a computable problem into sequential an logical steps as a solution for human and computer systems.

Career-related Competences	6.1 Operating specialised digital technologies for a particular field	To identify and use specialised digital tools and technologies for a particular field.
	6.2 Interpreting and manipulating data, information, media and digital content for a particular field	To understand, analyse and evaluate specialised data, information, media and digital content for a particular field within a digital environment.

Assessment Strategies and Reference Frameworks

While a competency model establishes what individuals should know how to do, it is equally important to establish some means of assessing whether individuals or groups have achieved some minimum level of proficiency in the specified competences. In organizations, for instance, where having the requiaite talent to support digital transformation is a concern, it may be useful to establish one or more reliable means of determining whether an individual has achieved the desired level of proficiency in several or all of the DMIL competences. In other instances, for example establishing policies or strategies that will affect large groups of residents or citizens, what is needed is some means of ascertaining competence for a group or sub-population.

In contemplating the assessment mechanisms to support a national DMIL framework, we examine assessment strategies and benchmark frameworks as measures at three levels of impact:

Competence Assessment seeks to determine the first order effects of the successful implementation of the DMIL policy should be individuals, various sub-populations and a society as a whole, that are more proficient in the various aspects of the digital, media and information literacy as outlined in the DMIL Competency Model.

Second and third-order effects speak to the end goals such as global competitiveness or gender equity, in which DMIL policy implementation activities are one of many contributing factors. Some of these contributing factors may be financial, trade and industrial policies, media regulation, and technology absorption. Nevertheless it is important to establish outcomes, indices, dimensions, and indicators that can help policy owners measure the decisions, attitudes, behaviors and impacts that arise indirectly from the implementation of the DMIL policy.

3.1 Competence Assessment methods

Competence assessment is about generating data that allows the assessor to make statements of known reliability about the DMIL competence of the assessed individual or group. As part of a review of digital literacy assessment instruments, Carretero et al (2016) identified twenty-two instruments and classified them into four categories: self-assessment, secondary data-gathering, knowledge-based assessment and performance assessment. Different assessment methods are associated with different levels of confidence - confidence in the reliability of the inferences the assessor can make about the competence of the assessed person or group.

Performance assessments directly test an individual's ability to perform the competence being tested, in as realistic a scenario as possible. A well-designed and executed performance assessment usually provides the highest level of confidence about the reliability of any statement about that person's competence.

Knowledge assessments require the individual to explain how they would perform a certain task. The data from this kind of assessment provides a lower level of confidence in the reliability of any statement about the individual's competence, but higher confidence than for self-assessment or secondary data-gathering.

A self-assessment is an individual's subjective evaluation of their own competence and may neither accurately convey their knowledge nor their competence. Comparisons of self-assessments and performance assessments by a representative national sample of persons between fifteen and sixty-four years old in Austria and Switzerland found that over fifty percent of the survey respondents over-estimated their digital competences (ECDL Foundation 2018, 7).

Secondary data-gathering is the collection of data not directly related to competence, for example, questions about ownership, accessibility, or use of digital technologies, education levels and job functions. From the answers, inferences may be made about DMIL competence, but understandably with lower levels of confidence in the reliability of any statements about the respondents' competences than knowledge or performance-based assessments. In contrast to the other three assessment methods, secondary data-gathering is not intended to answer questions about the competence of a specific individual, but instead of one or more groups of individuals.

Figure B1: Assessment methods

Figure B2: Level of confidence in Assessment methods
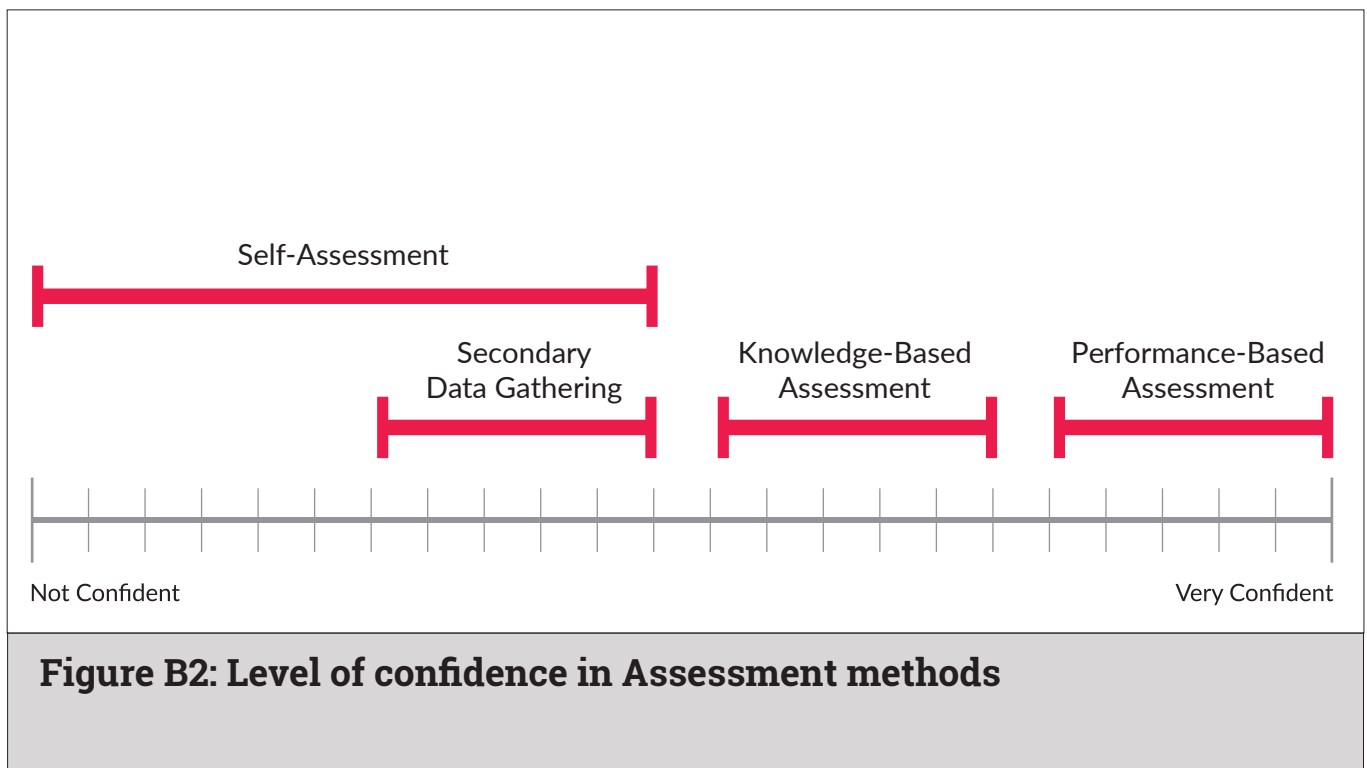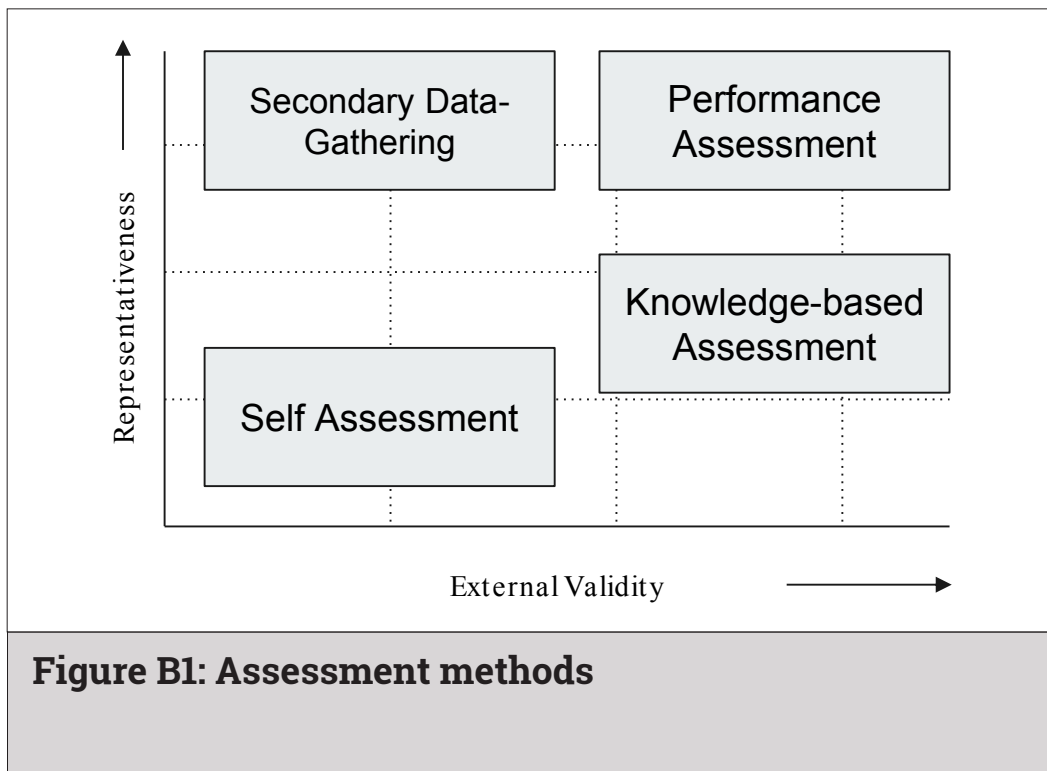
Digital Measurement Frameworks and Evaluation

This chapter is intended to inform the creation of an evaluation framework for the implementation of the DMIL policy, and so provide information for policy makers to change course when the data warrant it. Whereas the previous chapter focused on measuring the competence of individuals and populations, this chapter addresses measures aimed at the broader context which can facilitate or hinder, motivate or demotivate the development of digital, media and information literacy within the population.

The chapter will proceed to answer two research questions:

1. What are the most prominent indices that provide international comparisons of digital literacy policy implementation?

2. What leading and lagging indicators do other countries use to track digital literacy policy implementation?

A first order effect of the successful implementation of the DMIL policy should be a population that is more proficient in the various aspects of digital, media and information literacy as outlined in the DMIL Competency Model. What this chapter addresses, is policymakers' legitimate interest in the decisions, actions, and attitudes that arise indirectly from the implementation of the DMIL policy. These are measured by second or third order indicators (also called outcome indicators), and whereas first order indicators are a direct result of DMIL policy implementation, outcome indicators speak to the end goals such as global competitiveness or gender equity, in which DMIL policy implementation activities are one of many contributing factors. Some of these contributing factors may be financial, trade and industrial policies, media regulation, and technology absorption.

Indices that track these policy outcomes can function as independent benchmarks and help policy owners determine, independent of specific implementation activities, whether the policy is having the intended effect. They are also valuable to civil society and other stakeholders for evaluating policy owners' narratives about policy implementation and policy success. Many of the indices are multidimensional (Chakravorti et al. 2020, 16; Dutta and Lanvin 2020, 284; Foley et al. 2020; 6). Sometimes these parts are referred to as dimensions and sometimes as pillars, which themselves may be made up of sub-pillars. At the very base of these dimensions, pillars, and sub-pillars are indicators.

This Chapter will survey three indices and two measurement frameworks. The first is the International Digital Economy and Society Index (I-DESI) produced annually by the European Union, and covering forty-five (45) countries. This is a comprehensive index that forms part of a large well-funded multi-year EU-wide strategy designed to help the EU countries maintain their global competitiveness as the advanced economies of the world undergo rapid digital transformation. The Digital Intelligence Index is second. It is produced by a consortium led by The Fletcher School at Tufts University in Massachusetts, USA. It covers 90 countries and makes use of many proprietary data sources to measure the human dimension of the digital transformation process. The final index, the Network Readiness Index was published by the World Economic Forum (WEF), Cornell University and INSEAD until 2016, and since 2019 by the original authors under the umbrella of the Portulans Institute. It is the oldest (originating in 2002) and one of the most comprehensive (covering 130 countries). The United for Smart and Sustainable Cities (U4SSC) framework was established in 2016 with a secretariat provided by the International Telecommunication Union (ITU), UN-Habitat, and United Nations Economic Commission for Europe (UNECE). The final framework is promulgated under the aegis of an international, multi-stakeholder initiative called the Partnership on Measuring ICT for Development. The first core list of indicators was endorsed by the UN Statistical Commission in 2007 and has been revised several times. This framework is now led by the ITU and many national statistical offices globally - including the Statistical Institute of Jamaica (STATIN) - collect the primary data with ITU guidance regularly.

International DESI

The purpose of the International Digital Economy and Society Index (I-DESI) is to help the EU27 countries benchmark their digital competitiveness against a global peer group of eighteen (18) non-EU countries (Foley et al. 2020; 6). It is expected that the comparison will highlight areas for potential investments and policies that will allow countries to improve their digital performance. For the 2020 I-DESI, twenty-four (24) indicators are used covering the four year period 2015 to 2018. These indicators cover five dimensions:

1. Connectivity: the deployment of broadband infrastructure and its quality;
2. Human Capital: the skills needed to take advantage of the possibilities offered by a digital society;
3. Citizen use of Internet: the variety of activities performed by citizens already online
4. Integration of digital technology: the digitization of businesses and devel-

opment of the online sales channel;

5. Digital public services: the digitization of public services, focusing on eGovernment.

Connectivity is a necessary condition for the evolution of an information society and ought to be carefully monitored. Adopting the I-DESI Connectivity indicators will allow Jamaica to see how far from the global frontier it is. The DMIL policy aims to address the Human Capital pillar directly, so this is a first order effect which will be assessed as detailed in the previous chapter. Citizen use of Internet is important to illustrate the health and sophistication of Jamaican governance and society, and the population's potential to be globally competitive. This dimension is important to discern whether the population is using ICTs only for entertainment and communication or whether persons are also equipped to use it for other productive purposes. The population's trust in the internet and confidence in their ability to use it safely will influence the whole evolution of the society, so this dimension is critical. On the other hand, Integration of digital technology is critical to ascertain whether businesses are using digital technologies in ways that will improve their productivity and global competitiveness. Given Jamaica's significant exposure to international trade, this is very salient. Finally, digital public services are important because they can function to make use of digital technologies normal by driving widespread use by citizens. Digital public services also impact the ease of doing business in a country, and therefore the global competitiveness of firms operating Jamaica.

Digital Intelligence Index

Every three years, The Fletcher School at Tufts University publishes the Digital Evolution scorecard and the Digital Trust scorecard as part of their Digital Intelligence Index. The relevance of these scorecards to DMIL is in part, suggested by the goals set by the authors (Chakravorti et al. 2020, 18):

> "The Digital Evolution scorecard captures an economy's state and historical momentum from the physical past to the digital present and Digital Trust is the bridge that connects the journey from the digital present to an artificial intelligence augmented and inclusive digital future."

Given that the DMIL policy framework hopes to prepare Jamaicans to thrive in a digital economy and society, these two scorecards can provide valuable benchmarks and help to identify useful models and comparators. Unfortunately, Jamaica is not one of the countries that has ever been covered by either scorecard, but these scorecards are so influential that Jamaican DMIL policy stakeholders should be guided by the pillars, sub-pillars and suggested indicators that they use and how they use them.

The Digital Evolution scorecard covers 90 digital economies using 160 indicators over the 12-year period 2008-2019. This scorecard comprises four pillars: Supply Conditions, Demand Conditions, Institutional Environment, and Innovation and Change. Supply Conditions are largely the result of decisions made by a small number of very powerful actors who are not highly motivated to invest in the development of digital, media and information literacy of their captive audience.

The Institutional Environment is likely to be very resistant to DMIL policy implementation because there are so many different issues vying for legislators' and regulators' limited attention and budget. The connection between the DMIL policy framework and the Digital Evolution scorecard is in the Demand Conditions pillar. If the DMIL policy is successfully implemented we would expect Jamaica to continuously improve on the Digital Inclusion sub-pillar, which speaks to the gender, class, and rural digital divides. However, the other sub-pillars are largely dependent on the decisions of a few profit-maximizing firms or the state of the overall economy, both of which are not likely to be significantly affected in the near term by DMIL policy implementation. Table C1 summarizes how responsive the authors expect the elements measured by the Digital Evolution scorecard to be to DMIL policy implementation.

Table C1: Expected Responsiveness of Digital Evolution scorecard elements to DMIL policy

	Element	**Responsiveness**
1	Supply Conditions	-ve
2	Demand Conditions	
2.1	State of the Human Condition	-ve and first order effect
2.2	Digital Payment Uptake	-ve
2.3	Device and Broadband Uptake	-ve
2.4	Digital Inclusion	+ve
3	Institutional Environment	-ve
4	Innovation and Change	+ve

The Digital Trust scorecard covers 42 of the 90 economies from the Digital Evolution scorecard, using 198 indicators. The aim of the Digital Trust scorecard is to "examine the trustworthiness of the digital environment for each economy, the trustworthiness of the experience that users have, attitudes towards key institutions and organizations, and user behavior when interacting with the digital world and what it reveals about their trust in the digital system" (Chakravorti et al. 2020, 16). The scorecard consists of four pillars: Digital Environment, Digital User Experience, Attitudes, and Behaviour.

If the DMIL policy is well implemented we would expect businesses to expertly deploy robust privacy, security and accountability mechanisms to build trust in the environments that their employees and customers use and provide a "seamless experience with proper security protections," (26) corresponding to high scores in the Digital Environment and Digital User Experience pillars of the Digital Trust scorecard. Along with the education and training activities that would form part of a DMIL policy implementation, the trust-building mechanisms businesses deploy should lead to consumers having high levels of trust in digital environments, corresponding to a high score in the Attitudes pillar of the scorecard. By increasing Jamaicans' digital proficiency, the DMIL policy framework aims at increasing Jamaicans' engagement with the digital environment, which would correspond with the Behaviour pillar of the Digital Trust scorecard.

The Network Readiness Index

The Network Readiness Index (NRI) originated in 2002 as part of the Global Information Technology Report (GITR) published by the World Economic Forum, Cornell University and INSEAD. The 2020 edition covers 130 countries and is powered by 60 indicators (Dutta and Lanvin 2020, 283). NRI defines network readiness as a multi-dimensional concept consisting of four dimensions: Technology, People, Governance and Impact. Each of these is further divided into three sub-pillars.

The aim of the NRI is to measure the technology and human dimensions of network readiness and those factors that are key to sustainable digital transformation of the global economy (Dutta and Lanvin 2020, 7). In its aim to address the human dimensions of network readiness, the DMIL policy framework has a significant overlap with NRI, so much so that the NRI Individuals sub-pillar (within the People pillar) includes indicators that measure the intended first order effects of DMIL policy implementation.

Successful DMIL policy implementation would stimulate other changes, which would improve Jamaica's scores in the Content and Future Technologies pillars. We would expect to see more Jamaican entrepreneurs and established businesses adopt (1.3.1) and invest (1.3.2) in emerging technologies. We would expect computer software spending (1.3.4) to increase, more firms to establish websites (2.2.1) and more businesses to use digital tools (2.2.5). We would also expect greater digital inclusiveness, with higher scores for the availability of local online content (3.3.3) and a reduced gender gap in internet use (3.3.4). Finally, we would anticipate higher labour productivity per employee (4.1.4) and increased prevalence of the gig economy (4.1.5).

Table C2: NRI Indicators suitable for monitoring success of DMIL policy

ID#	Indicator	ID#	Indicator
1.2.1	GitHub commits	2.1.1	Internet users
1.2.2	Wikipedia edit	2.1.3	Use of virtual social networks
1.2.3	Internet domain registrations	2.2.1	Firms with website
1.2.4	Mobile app development	2.2.5	Business use of digital tools
1.3.1	Adoption of emerging technologies	3.3.3	Availability of local online content
1.3.2	Investment in emerging technologies	3.3.4	Gender gap in Internet use
1.3.4	Computer software spending	4.1.4	Labour productivity per employee
		4.1.5	Prevalence of gig economy

Table C2 summarizes the NRI Indicators suitable for monitoring success of DMIL policy implementation.

United for Smart Sustainable Cities (U4SSC)

The animating force behind the U4SSC initiative is the existence of new technologies that can be harnessed to "Make cities and human settlements inclusive, safe, resilient and sustainable", UN Sustainable Development Goal 11. While this initiative is most advanced in the European Union where cities are a dominant type of human settlement, Nigeria and other not so rich countries have promoted the complementary notion of smart villages. The ITU supported work streams on smart cities and smart villages is still so new and rapidly evolving, that Jamaica could make a significant contribution to their evolution by adopting and adapting these frameworks for its own use. A combination of smart cities and smart villages - smart communities - is warranted for the more than 775 communities in Jamaica, most of which are small towns and remote communities. Based on the U4SSC description of a smart and sustainable city, the authors propose that a smart and sustainable community is "an innovative community that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of community operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental as well as cultural aspects."

The U4SSC includes 91 indicators grouped into three dimensions: Economy, Environment, and Society and Culture. Each dimension contains sub-dimensions and these are further broken down into core and advanced indicators.
Table C3 lays out the dimensions, sub-dimensions, and categories. An example of a complementary category not covered in Table 3 but relevant to smart villages and communities is Arable Land. Example indicators that would fall within this category are, the fraction of arable land that:

1. is irrigated;
2. is covered by high resolution sensor networks to track precipitation, run-off, evapotranspiration, and other variables relevant to climate-smart agriculture;
3. can access data transmission networks suitable for monitoring farms;
4. can access advanced location services for automated farming equipment;
5. that is being used for farming, organic farming, covered farming, aquaculture, grasslands or forests, non-agricultural, fishery or forestry purposes.

Given STATIN's existing relationship with the ITU, they are in the ideal position to collect and report the data for these indicators. This framework would provide a comprehensive picture of the traditional municipal infrastructure as well as the modern digital infrastructure in each community, regardless of whether it is urban, rural, or remote.These indicators should be used by municipal councils, officials involved in land use planning, and community development.

Table C3: KPI Numbering Convention for U4SSC

XX -		X(XX):		X(XX):		Number	C or A
Dimension		Sub-Dimension		Category		1, 2, 3, etc.	C: Core A: Advanced
EC	Economy	E	Energy	AQ	Air Quality		
EN	Environment	EH	Education, Health and Culture	B	Buildings		
SC	Society and Culture	EN	Environment	C	Culture		
		I	Infrastructure	D	Drainage		
		ICT	ICT	E	Energy		
		P	Productivity	ED	Education		
		SH	Safety, Housing and Social Inclusion	EM	Employment		
				EQ	Environmental Quality		
				ES	Electricity Supply		
				FS	Food Security		
				H	Health		
				HO	Housing		
				IN	Innovation		
				ICT	ICT Infrastructure		
				PS	Public Sector		
				PSN	Public Spaces and Nature		
				SA	Safety		
				SI	Social Inclusion		
				T	Transport		
				UP	Urban Planning		
				WA	Waste		
				WS	Water and Sanitation		

The Partnership on Measuring ICT for Development

The Partnership was launched in 2004 to improve the quality and availability of ICT data and indicators available for developing countries, and to guide countries in measuring the information society. As such, it is very salient for tracking DMIL policy implementation. The Partnership includes 14 regional and international organizations involved in ICT statistics collection. Since the first core list of indicators was endorsed by the UN Statistical Commission in 2004, it has been revised several times, most recently in March 2022.

The 60 indicators in the core list is grouped into 6 dimensions:

1. ICT infrastructure and access
2. Access and use of ICT by households and individuals
3. ICT access and use by enterprises
4. The ICT sector and trade in ICT goods
5. ICT in education
6. ICT in government.

The indicators are rigorously defined to allow international comparability and there is a great deal of capacity building support available for national statistical offices. Given the promotion by the ITU many countries are integrating these indicators into their annual data collection schedule, and we can expect these indicators to be widely available.

Conclusion

Of the five measurement frameworks covered in this chapter, the last two are most important for evaluating the success of DMIL policy implementation. Whereas the U4SSC framework is targeted at individual communities, the Partnership Core List is aimed at the national level. Therefore the two frameworks are complementary, and given that they are both shepherded by the ITU with which STATIN has a good, long-standing relationship, we urge that STATIN regularly collects and reports these indicators. To be able to compare Jamaica's digital competitiveness relative to the EU27, Jamaica needs to collect additional data as defined by the I-DESI framework. The value of this information outweighs the costs and the authors urge Jamaica to adopt the framework.

On the other hand, the Digital Intelligence Index relies on proprietary data and it is reasonable to expect that Jamaica will be included in this Index when Jamaica's digital sophistication warrants it. Therefore while the elements Digital Evolution and Digital Trust scorecards are relevant to the evolution of Jamaica's information society, the authors do not think they should be a priority at this time. Jamaica's current inclusion in the Network Readiness Index imposes no additional data collection burden. The authors recommend that the appropriate elements of the index be incorporated into the evaluation framework.

References

Chakravorti, Bhaskar, Ravi Shankar Chaturvedi, Christina Filipovic, and Griffin Brewer. 2020. "Digital in the Time of COVID: Trust in the Digital Economy and Its Evolution Across 90 Economies as the Planet Paused for a Pandemic." Medford. https://sites.tufts.edu/digitalplanet/files/2020/12/digital-intelligence-index.pdf.

Dutta, Soumitra, and Bruno Lanvin, eds. 2020. "The Network Readiness Index 2020: Accelerating Digital Transformation in a Post-COVID Global Economy." Washington D.C.: Portulans Institute.

Foley, Paul, David Sutton, Richard Potter, Selina Patel, and Alexandra Gemmell. 2020. *International Digital Economy and Society Index 2020*. https://doi.org/10.2759/757411.

Active Stakeholder Representatives

Public Sector

Steering Committee	
Broadcasting Commission	
Consultations	
MSET, eGov, OPM, Transformation Implementation Unit, MIND, Scientific Research Council, Jamaica Customs Agency, Tourism Enhancement Fund, Digital Switchover Project (Spectrum Mngt Authority & BCJ)	

Education & Training

Steering Committee
Min. of Education; UNICEF Jamaica; The UWI, Mona; Ricardo Allen (One on One)
Consultations
HEART NSTA, JTA, Ja. Ass'n of Principals of Secondary Schools, NPTAJ, National Library of Jamaica, JLS, Ja. Union of Tertiary Students, National Secondary Students' Council.
IDPs World Bank Group

Public Sector

Steering Committee
PSOJ, JTDA, JITSA
Consultations
MSME Alliance, SBAJ, Young Entrepreneurs Assn, Kingston Creative, Global Services Assn of Ja., PSOJ Innovation & Digital Transformation Committee, Alteroo, Salus Technology Services; nascent Sector Skills Councils for Agribusiness, Logistics, Manufacturing.
MDAs Vision 2030 Secretariat, JAMPRO.
IDPs Inter-American Development Bank, Compete Caribbean, UNDP

Communities & Civil Society

Steering Committee
Institute of Caribbean Studies & CARIMC, UWI
Consultations
Carol Narcisse, Dr Patrick Prendergast, Ja. Umbrella Group of Churches, CVSS, Library and Information Association of Jamaica, Rotary Club of New Kingston.
MDAs & GoJ Programmes National Youth Advisory Council of Jamaica, National Council for Senior Citizens, Office of the Children's Advocate, Abilities Foundation of Jamaica, Jamaica Council for PWD, Min. of Labour & Social Services, JSIF, CRP PIOJ, HOPE Programme.

2022 Jamaica Digital, Media and Information Literacy Baseline

Overview and Key Findings

As presented December 2022 to the
Broadcasting Commission of Jamaica

How is DMIL measured?

Areas, Competences & Items

Digital Content Creation

Digital Content Creation

3.1 Developing media and digital content

3.2 Integrating and re-elaborating media and digital content

3.3 Monitoring influence of information, media content, knowledge production and use as well as media and information providers

3.4 Copyright and licenses

3.5 Programming

"How easy is it for you to create something that combines different digital media (e.g. photos, music, videos, GIFs)"

"Did you use word processing software (e.g. Microsoft Word, Google Docs)?"

"Did you use spreadsheet software (e.g. Microsoft Excel, Google Sheets)?"

"Did you use advanced functions of spreadsheet software (e.g. formulas) to organise, analyze, structure or modify data?"

Scale for each DMIL Competence

Full
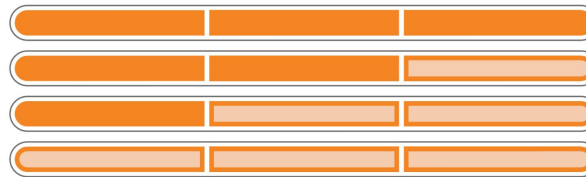
Above Basic Skills
Basic Skills
Low Skills
No Skills

Trichotomous
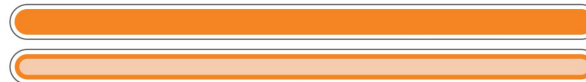
At Least Basic Skills
Low Skills
No Skills

Dichotomous

At Least Basic Skills
No Skills

Median Persona

Demographics

Name:	Marsha Smith
Gender:	Female
Age:	25-34
Education:	Grade 10/11 (or NCTVET L1 or L2)
Employment:	Full-Time
SEL:	Lower to Lower Middle
Household Income:	<= JMD $100,000 p/m
Grocery Spend	JMD $31,000

Median Persona

Device Ownership/Access

Owns a smartphone and accesses the Internet from that device

Usage Style

Her consumption patterns favor lifestyle (social and entertainment) activities rather than "office-oriented" ones, so much so that she is unlikely to have used word-processing or spreadsheet applications within the last three months.

Media, Information and Data Literacy

1.1 Accessing needed data, information, media and digital content as well as media and information providers.

Above Basic Skills

1.2 Evaluating data, information, media and digital content, their sources and providers

Basic Skills

1.3 Understanding of information and media

Above Basic Skills

1.4 Managing data, information, media and digital content

Above Basic Skills

Communication and Collaboration

2.1 Sharing and interacting through digital technologies

Above Basic Skills

2.2 Engaging in citizenship through digital technologies

Low Skills

2.3 Collaborating through digital technologies

At Least Basic Skills

2.4 Netiquette

At Least Basic Skills

3 Digital Content Creation

3.1 Developing media and digital content
Low Skills

3.2 Integrating and re-elaborating media and digital content
At Least Basic Skills

3.3 Monitoring influence of information, media content, knowledge production and use as well as media and information providers
At Least Basic Skills

3.4 Copyright and licenses
At Least Basic Skills

3.5 Programming
No Skills

4 Safety

4.1 Protecting devices
Above Basic Skills

4.2 Protecting personal data and privacy
Above Basic Skills

4.3 Protecting health and well-being
Above Basic Skills

5 Problem Solving

5.1 Solving technical problems
Above Basic Skills

5.2 Identifying needs and technological responses
No Skills

5.3 Creatively using digital technologies
No Skills

5.4 Identifying digital competence gaps
Above Basic Skills

National Baseline
Key Insights
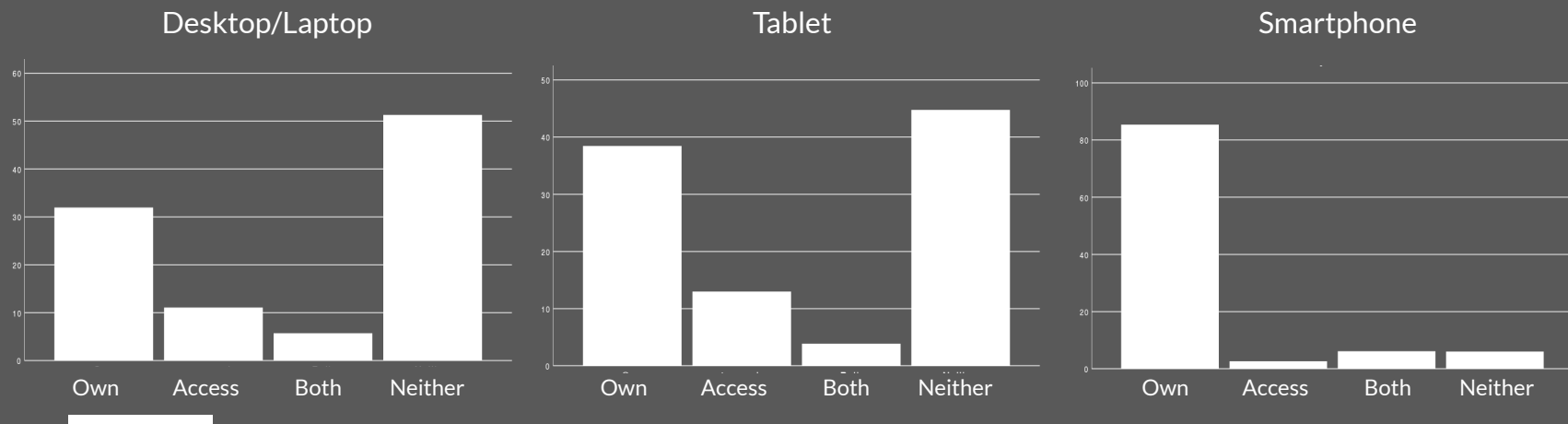
Insight

Successful Interventions Must Be Mobile First

Digital services, education, engagement and published experiences MUST be designed to be consumed from a mobile phone as a priority.

This impacts thoughts on action-flow, user interface design, the embedded technology and the social tenets of mobile such as shareability and segmentation for digestion

Successful Interventions Must Be Mobile First
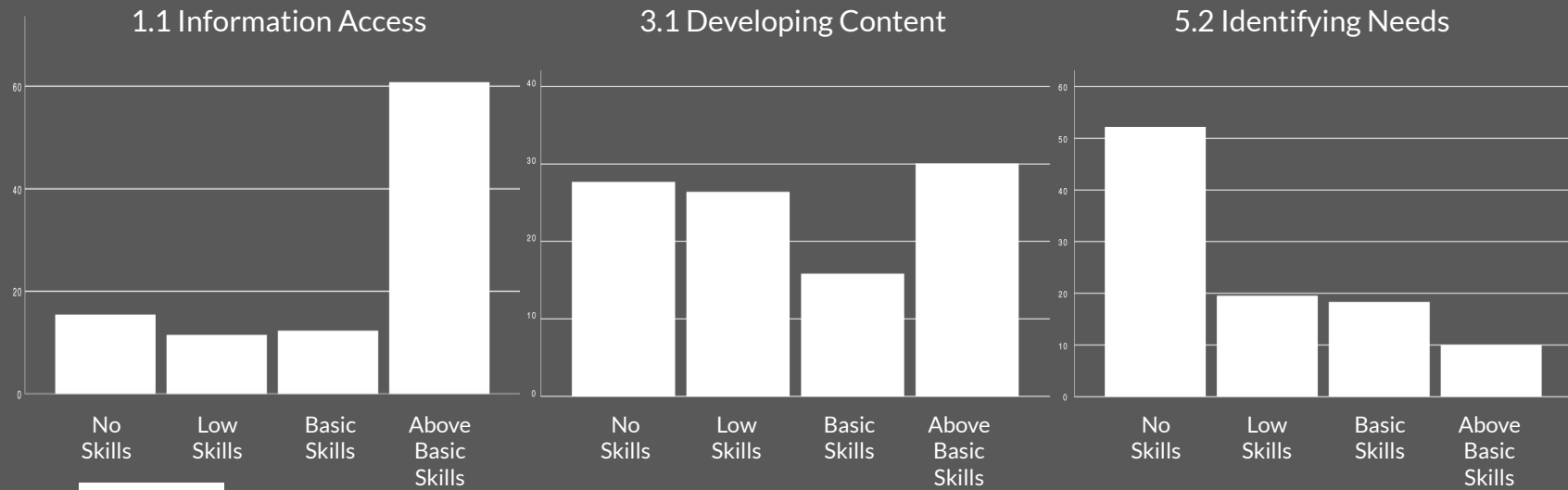

Desktop/Laptop | Tablet | Smartphone

Insight

Lifestyle & Culture Drive Competence

The DMIL competences prevalent among Jamaica's adult population are driven by lifestyle and culture rather than the formal economy.

Insight
Lifestyle & Culture Drive Competence

1.1 Information Access

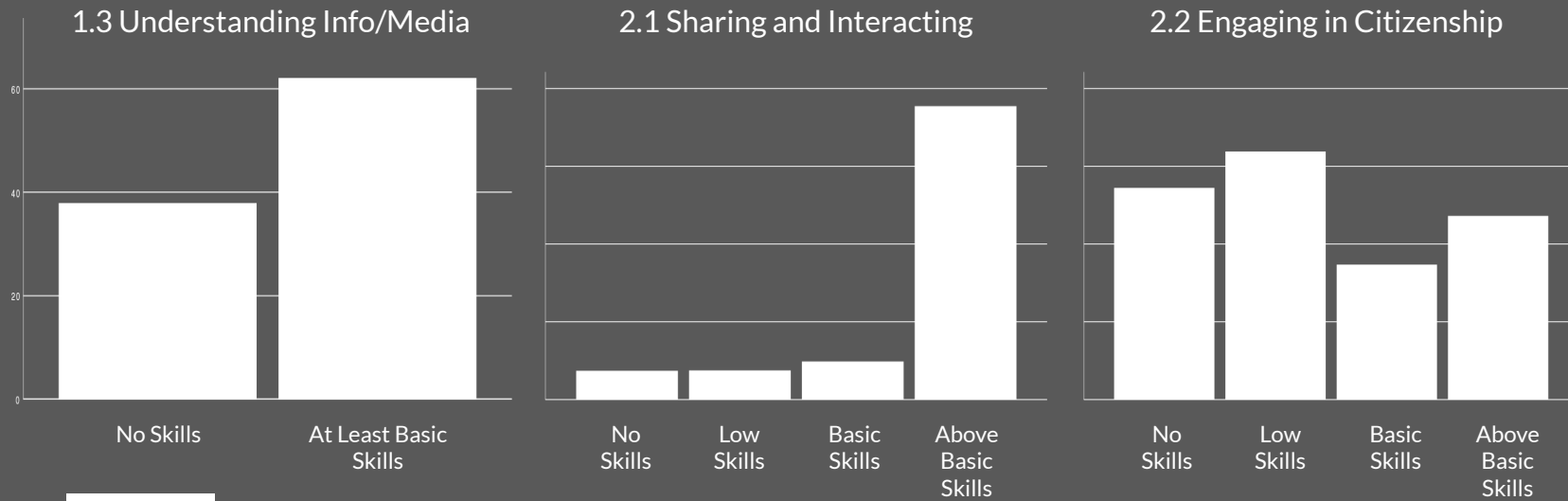**3.1 Developing Content**

5.2 Identifying Needs

Insight

Apathy Extends Into The Digital

Despite scoring very highly in the competence areas of Communication and Collaboration as well as Media, Information and Data Literacy, Jamaicans still rate themselves as having LOW skills as it pertains to engaging in citizenship via digital technologies

Insight
Apathy Extends Into The Digital

1.3 Understanding Info/Media

No Skills	At Least Basic Skills

2.1 Sharing and Interacting

No Skills	Low Skills	Basic Skills	Above Basic Skills

2.2 Engaging in Citizenship

No Skills	Low Skills	Basic Skills	Above Basic Skills

Limitations and Delimitations of the DMIL Baseline

Limitations and Delimitations

Delimitations

1. Limits on the age of the respondent
2. Focus on statistical representativeness (for the National Baseline Survey)
3. Accepted margin of error from parent instruments
4. Unmeasured Competences

Limitations

1. Inability to access all communities due to COVID 19
2. The under-representation of the most vulnerable groups
3. Digital culture and what was "lost in translation"
4. Absence of metrics for fallout during pilot and final