

POLICY. ACCESS. CONTENTS. TOOLS
P.A.C.T

An Initiative of the Advanced Centre for Sustainable Socio-Economic and
Technological Development (ASSET)

Digital Inclusion in Sarawak

Challenges, Opportunities and Way
Forward

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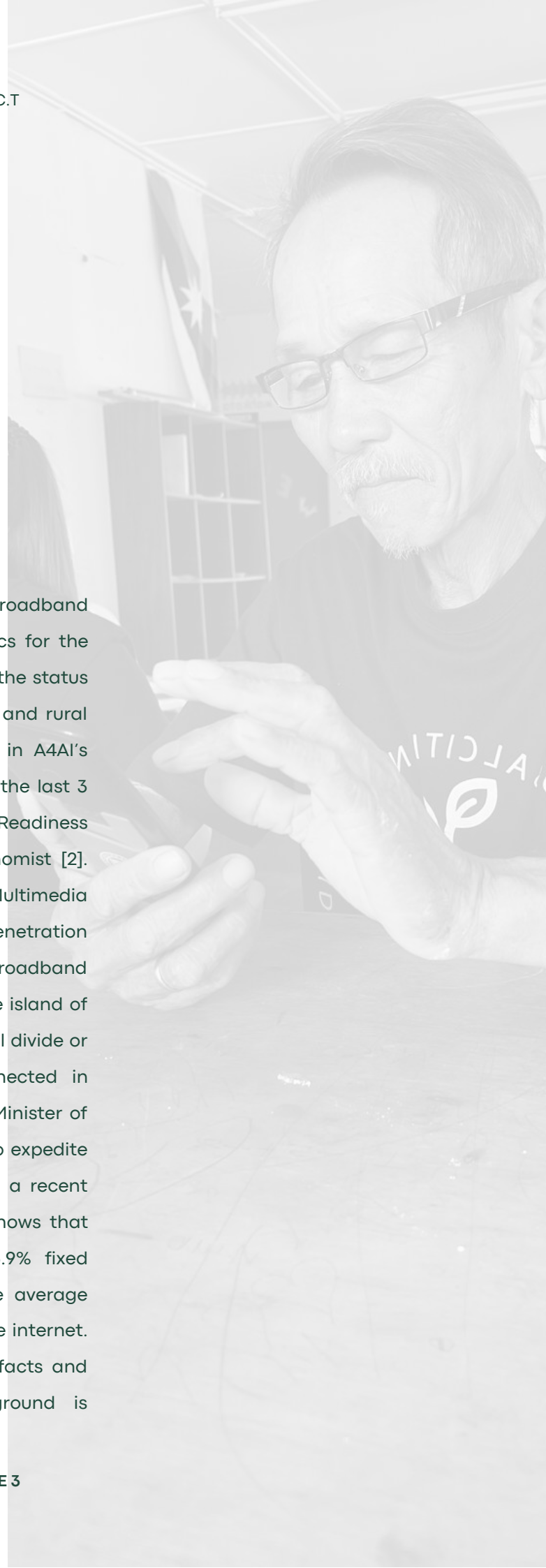
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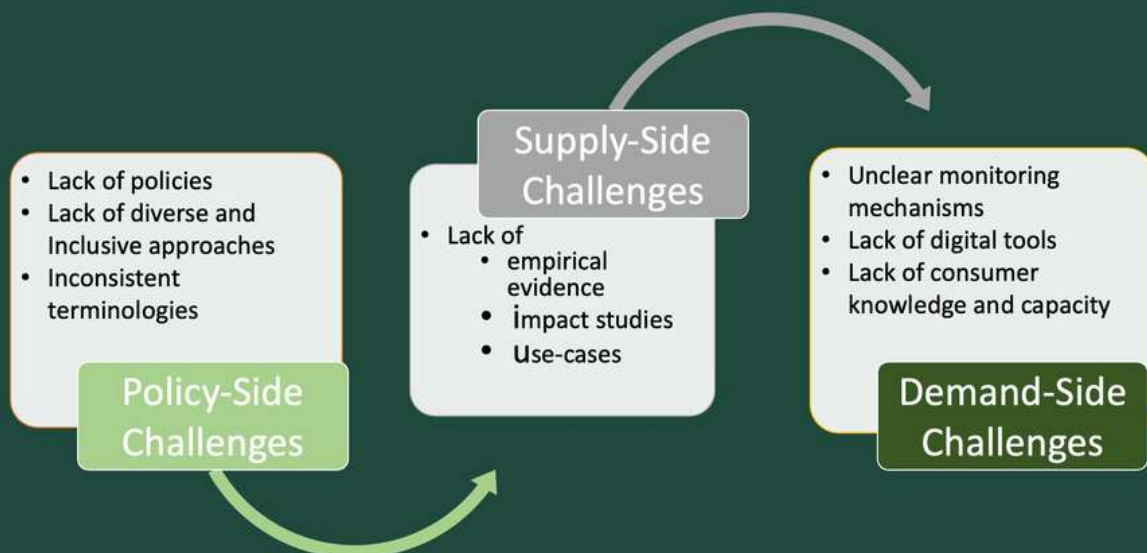
1.0 Background

Malaysia is often lauded for internet access and broadband penetration rates. Although the national statistics for the country are impressive, they usually do not cover the status of internet and broadband access in indigenous and rural communities. The country is the top performer in A4AI's Affordability Drivers Index (ADI) consecutively for the last 3 years [1] and is one of the global leaders in the Readiness pillar of the Inclusive Internet Index of the Economist [2]. According to the Malaysian Communication and Multimedia Commission (MCMC), the mobile broadband penetration rate in Malaysia is 120% compared to 37% fixed broadband [3]. Sarawak is one of the Malaysian states on the island of Borneo. During the COVID-19 pandemic, the digital divide or gap between the connected and the unconnected in Sarawak was widely exposed [4], and the Prime Minister of Malaysia and Chief Minister of Sarawak agreed to expedite internet connectivity in Sarawak [5],[6]. However, a recent MCMC report portrays a different picture and shows that Sarawak has 103% mobile broadband and 25.9% fixed broadband penetration rates, which means the average Sarawakian has at least one way of accessing the internet. Therefore, a wide contrast between the official facts and figures and the actual situation on the ground is conspicuous.



2.0 The Challenges in a Nutshell

The challenges for digital inclusion faced by the indigenous and rural communities of Sarawak are threefold (as depicted in below Figure);



2.1 Policy-side challenges

Policy-side challenges are related to the absence, inappropriate and unclear policies and hindrances for digital inclusion. The following section further explains the challenges;



2.1.1

Vague and unclear Terminologies, Standards and Indicators:



2.1.2

Absence of Diversity and Inclusion



2.1.3

Absence of Policy and Exercise of Administrative Powers:

2.1.1 Vague and unclear Terminologies, Standards and Indicators

Sarawak has a low population density (23/km²), with most people living in rural communities (52%). MCMC suggests technology solutions based on population density[7] and it shows that the majority of the population in Sarawak is scattered across “remote” sites ($\leq 19/\text{km}^2$) with some in “rural” areas (20 to 65/km²). The current policies set the targets based on unclear indicators such as the recently announced Jalanan Digital Negara (JENDELA) plan targets 100% 4G coverage in “populated areas”. The policy document does not explain how “populated areas” are defined and does not mention the broadband and internet penetration targets in “remote” and “rural” communities. The Malaysia Digital Economy Blueprint targets streamlining terminology concerning internet connectivity in the federal and state acts; however, the blueprint does not fully detail how these interventions will be implemented[8].



2.1.2 Absence of Diversity and Inclusion

In Sarawak, the state politics support digital inclusion[9] and administrative motivation for digital inclusion is present[10]. Unlike the other States of Malaysia, Sarawak has autonomy to manage its resources and public services. In 2017, the State Govt. established (by an ordinance) the Sarawak Multimedia Authority (SMA), a regulatory body to spearhead, oversee and facilitate the development and implementation of the communication, multimedia and the State's Digital Economy Initiatives[10]. However, a knowledge gap exists with regards to how digital inclusion policies and programs might best fit and be adapted to the aims and desired development outcomes of the indigenous and remote communities. The SMA Digital Economy Strategy has a 2018-2022 timeline, while access to broadband internet is still a big challenge for the majority of the population in the remote and rural communities of Sarawak[11]. The Digital Economy Strategy does not fully detail how the progress of the initiatives will be monitored, particularly as they require coordination and cooperation across government departments, operators, and local communities.

2.1.3 Absence of Policy and Exercise of Administrative Powers

MCMC awards spectrum to a telecom operator with a condition to provide connectivity to 95% of the population but not in 95% of the geographical area. Where the spectrum allocation is not supportive of the geographically dispersed communities, the policies do also not support local innovation and low-cost solutions. For example, during the pandemic lock-down, some villages came up with the idea of hoisting mobile phones on bamboo poles and turning on their “hotspot” to function as operator-independent wideband repeaters.



However, MCMC considered the installation of repeaters a violation of the Communications and Multimedia Act 1998. On the other side, the state authority SMA is more proactive in accommodating new innovative models. In Oct. 2020, Sarawak started Malaysia’s first Multi-Operator Core Network tower to improve 4G coverage[12]. Currently, Sarawak lacks a comprehensive rural broadband policy; however, it supports innovative technologies, architectures, and business models through administrative powers.

2.2 Supply-side challenges

Supply-side challenges are related to infrastructure and services issues faced by indigenous and rural communities;



2.2.1

Lack of Empirical Evidence and Evaluation Studies





2.2.1 Lack of Empirical Evidence and Evaluation Studies

Commercial telecom operators have considerable difficulty justifying the costly investments for providing infrastructure to rural communities in Sarawak. Therefore, MCMC, under the Universal Service Provision (USP) program, channelises the private sector investment into unprofitable rural areas. MCMC allocated RM 3.00 billion in 2020 and RM 3.2 billion in 2021 (from USP) to improve the quality of broadband services in rural areas. However, the Sarawak State Government is not satisfied with implementing the digital divide programs and plans to establish a state-owned telecommunication company (telco) within the next two years. This is to expedite internet connectivity in rural areas, which are feeling the brunt of digital alienation[13]. Nevertheless, the government usually depends on traditional telecom operators to provide solutions based on 'one size fits all' approach, which is expensive, highly technical, and unsustainable. For example, according to MCMC, sustainability and maintenance are the major challenges in the USP-funded projects, including the village WiFi and Pusat Internet (Telecentres, 1100 in Malaysia) projects[14]. Even before the pandemic, there were several newspaper reports and debates in the parliament about the non-performing rural connectivity projects, telecommunication towers and internet accessibility issues in remote and rural Sarawak[15],[16],[17]. APC also reported the case of Mozambique where three-quarters of 103 base stations funded by the universal service fund are non-operational as of 2018[18]. We are lacking an in-depth empirical study to identify the issues and challenges of the previously implemented rural connectivity projects funded under USP. However, SMA planned to establish 600 while MCMC will establish 818 new towers in Sarawak in 2021.

2.3 Demand-side challenges

Demand-side challenges are related to adoption, use of digital technologies and the situated needs and rights of indigenous and rural communities.



2.3.1

Lack of Capacity, Methods and Tools to Report and Monitor Internet Access

2.3.1 LACK OF CAPACITY, METHODS AND TOOLS TO REPORT AND MONITOR INTERNET ACCESS

Sarawak is the first State which supported JENDELA's plan to recognise telecommunication as a public utility[19]. Therefore, SMA initiated state-wide digital infrastructure programs such as SMA-300. However, there is no discussion beyond the implementation phase. Questions such as who will maintain the services? how the consumer can report the non-availability/quality of the services in case of only one operator's channel in the village? are still pending answers. The current structure of Quality of Service (QoS) reports doesnot portray a clear picture and leads toward two challenges; first, it provides aggregated data without a distinction in grades of QoS in remote and rural communities.

Second, it doesn't outline the method, tools and specific locations used for the testing and evaluation of QoS. The MCMC Network Performance Report 2020 does not show the status of QoS in Sarawak due to the current travel restrictions. Due to the lack of a robust redressal mechanism, many of the rural connectivity projects in Sarawak such as Kampung Tanga Wire (Village Wi-Fi) are never repaired once they broke-down[20]. In addition, the initiative solely comprises of "technology deployment" has a higher chance of becoming a proverbial "white elephant" than the initiative developed with the active engagement of indigenous communities in the planning phase. For example, despite the huge investment of the Sarawak government in rural telecommunication projects, local community networks consisting of infrastructure that is owned by the community are rare and the real respect and contribution for indigenous voices in policy implementations remain to be seen. Nevertheless, issues related to digital inclusion and internet connectivity are new to the indigenous communities. They generally do not have the required technical expertise (beyond the use of digital devices), therefore it is a tremendous challenge for the government to identify, reach and listen to the indigenous voices. In order to give indigenous communities abilities to engage meaningfully and address the supply, demand, and policy-side challenges, capacity-building programs for digital inclusion are of utmost importance.



3.0 Guiding Questions

Policy-side challenges are related to the absence, inappropriate and unclear policies and hindrances for digital inclusion. The following section further explains the challenges;



1

What are the government, public representatives and organisational digital inclusion aspirations?



2

What are the local community's aspirations? Are the community aspirations accommodated in the digital inclusion policies, plans and programs?



3

Did the digital inclusion programs achieve the goals and fulfil the local communities' actual needs?



4

Are there any challenges in achieving the stakeholders' aspirations? Are there model projects in Malaysia and in other parts of the world which successfully dealt with those challenges? Can we learn, adopt or replicate those models?

4.0 The Program Components

Policy. Access. Contents and Tools (PACT)

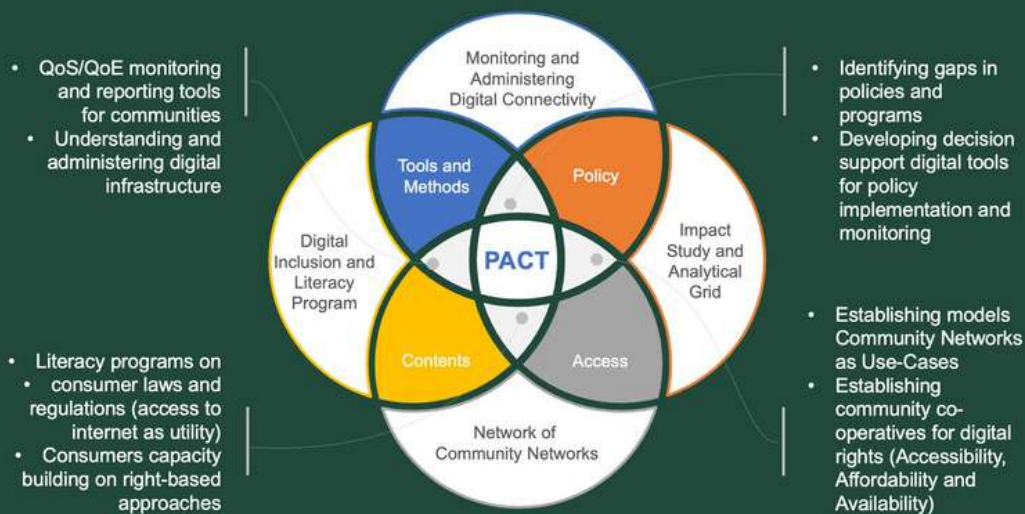
The program plan has four components;

Policy: Policy and Impact Studies

Access: Establishing Network of Community Networks

Contents: Digital Inclusion and Literacy Program (DIPL)

Tools: Developing Tools and Methods



4.1 POLICY AND IMPACT STUDIES

- An analytical study of the Federal and Sarawak State digital inclusion and internet accessibility policies will be conducted. The policy documents will be analysed, gaps will be identified and issues will be prioritised to address. Policymakers and public representatives will be engaged and interviewed to understand the government's digital aspirations.
- An impact study of the USP funded projects (50 sites) will be conducted in remote and rural communities of Sarawak; which include the projects Kampung Tanpa Wire (village Wifi), Pusat Internet (Telecentre) and Telecommunication Towers;
- Analytical Grid construction: the precise aim is to construct an Analytical Grid in order to have "a map" to determine the parameters for analysing the status of digital inclusion in remote and rural communities of Sarawak.



4.2 ACCESS: ESTABLISHING A NETWORK OF COMMUNITY NETWORKS

- There are 1100 Pusat Internet (telecentre) in Malaysia which are fully funded and operationalized with the support of USP programs. These centres are equipped with high-speed internet, PCs, laptops for community use, propriety licensed software and run by two trained full-time staff members. The Pusat Internet is facing challenges of sustainability, under-utilised, and a lack of community support. Currently, MCMC is exploring new community-based models such as community cooperatives or identifying community entrepreneurs for running these centres. Community networks are successful models of local entrepreneurship and contribute to the local economy, create local employment, bring efficiencies in local markets or help local markets diversify. MCMC provides Class License for Broadcasting, Mobile Services, Fixed Services, Broadband[21], however until now, there are no Community Network established by the local communities in Malaysia. Community networks movement can fill the coverage and usage gaps left by the telecommunication operators, in a complementary way. Therefore, creating and promoting specific "use-cases" such as Community Networks for improved broadband connectivity in targeted rural settlements will help to broaden the vision. Therefore, the project plans include establishing a network of Thirteen (13) community networks (1 in each state of Malaysia) by mobilizing a partnership between local community members and Pusat Internet in Sarawak.

4.3 CONTENTS: DIGITAL INCLUSION AND LITERACY PROGRAM (DIPL)

- A digital inclusion and literacy program for the local indigenous communities of Sarawak will be designed and implemented. The digital literacy program will target building the capacity of local community champions in understanding and identifying the key elements of digital content and digital connectivity and how they work together. Based on the rights-based approach, it will also cover modules on consumers' telecommunication rights, digital infrastructure, monitoring, and reporting of digital connectivity. The program will be designed and delivered with the support of telecom operators who run the Pusat Internet and Digital Innovation hubs, which mandate organizing training programs for local community members, organisations and entrepreneurs.

4.4 TOOLS: DEVELOPING DIGITAL TOOLS AND METHODS

- Until 2019, telecom operators monitored the QoS of their provided services, reported it to the regulator, and the regulator published Network Performance Reports quarterly. For the last two years, it is MCMC that monitors the QoS of the telecom operators and publishes the report; however, as mentioned earlier, the reports present aggregated data without specifying the status of broadband service in remote and rural communities. Therefore, the performance, efficiency, and efficacy of USP funds channelled to rural connectivity projects are not evident. The communities in the Northwest Territories of Canada developed CIRA Speed Test[22], a digital tool to understand better the

factors contributing to the differences between Internet speed data published on the federal government's National Broadband Internet Service Availability Map and community experiences in British Columbia[23]. We aim to develop a QoS/Quality of Experience monitoring tool that will help the regulator, policymakers and local communities to report and understand better the situation of broadband access in local communities.

- According to the Communications and Multimedia Consumer Forum of Malaysia (CFM) 63% of Malaysian consumers are unsatisfied with the quality of internet speeds promised by their providers[24]. As a redressal mechanism, consumers can file a complaint at the MCMC complaint portal, make a call or send a fax[25]. The current method of reporting only works for consumers with more than one means of electronic communication. Unfortunately, consumers in USP-funded projects in remote communities have access to only one access point (a tower run by an operator). If the tower/access point is out of service, there is no alternate way to report or complain about the performance of the services. To address this issue, a change in practice and use-case need to develop, leading to innovative practice and technology to cover the gap with minimum human intervention. For example, the telecommunication regulators in the Canadian Northwest Territories also accept complaints sent by postal services by the user who is facing problems with the telecommunication services.

Partnership Network

Project Components	Collaboration: Knowledge Transfer (exchange of knowledge products and services)	Partnership: Funding Support (exchange of funding resources)
Policy and Impact Studies	MCMC Sarawak University of Alberta Canada	DSRG-MCMC APNIC (the Asia Pacific Network Information Centre) Sarawak Sarawak Digital Economy Corporation Berhad - SDEC
Establishing Network of Community Networks	Association for Progressive Communication (APC) University of Alberta Canada Sacofa Sdn Bhd	
Digital Inclusion and Literacy Program (DIPL)	University of Alberta Canada	APC under Local Network 2021 Grant Programme[26]
Developing Tools and Methods	University of Alberta Canada	APNIC (the Asia Pacific Network Information Centre)

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