Stakeholder Engagement Report – ISPs and Public Institutions

2022
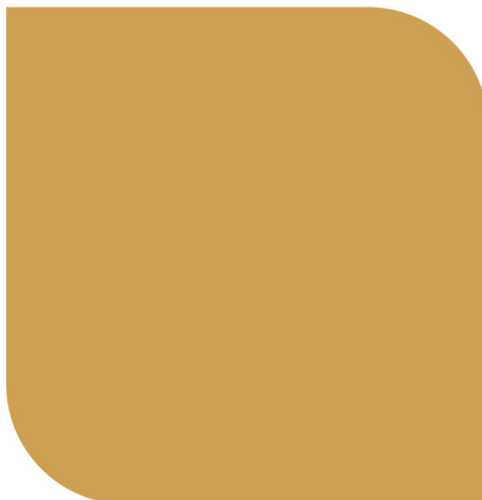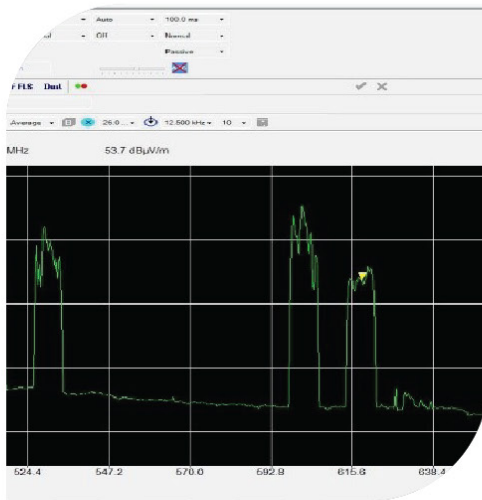
EXECUTIVE SUMMARY

In this report, we present the feedback obtained from engagement with Stakeholders – both the Internet Service Providers (ISPs) and the Public Institutions. The public institutions in this case refers to government institutions, the regulator (Communications Authority of Kenya - CA), ICT policy advocacy groups such as KICTANet and the general public constituting of researchers and students. Both engagements were carried out in form of both physical and online workshops.

The first workshop was conducted on 21st January 2022 at Strathmore University in a hybrid format with the ISPs. Its intention was to present the draft findings on the preceding study of the Gap Analysis on Spectrum Sharing in Kenya to the ISPs while at the same time determine the level of their understanding on the concept of Spectrum Sharing. Moreover, given that at the time, the country was gradually building from the effects of the COVID-19 pandemic, the workshop also sought to understand the opportunities and challenges that the ISPs experienced and saw as future development nuances to bridging the digital divide in the country. Key to this viewpoint was the familiarity of the Television White Spaces (TVWS) regulations that had been published in May 2021 and the opportunity of deploying such technology for the underserved in Kenya. Further, the understanding of the ISPs on the Community Networks regulatory framework that had also been published by CA in May 2021 was also assessed. The CNs framework postulated a new approach to affordable connectivity needs and opportunistic use of specific radio frequency (RF) bands to deliver contextual connectivity initiatives to the underserved. The highlight of this first workshop was a showcase of the developments on Wi-Fi 6E as the new Wi-Fi technology extending into the 6 GHz band to spur economic growth in Kenya. The Dynamic Spectrum Alliance (DSA) presented the earlier findings on the Economic opportunity of Wi-Fi 6E for Kenya and the activities that had been going on in Europe and the America's in regard to adoption and use of Wi-Fi 6E.

The second workshop was conducted on 11th March 2022 and happened virtually via the Microsoft Teams platform. While the engagement for this workshop was with the public institutions, some ISPs, both local and from around Africa were also able to join it. Similar to the first workshop, the findings of the Gap Analysis study were presented to obtain feedback from the public institutions alongside the showcase of shared spectrum network developments in Kenya, the landscape of understanding by the ISPs and the developments of Digital Access as spearhead by the Foreign Commonwealth Development Office (FCDO).

In the presentations of the findings from both engagements, this report breaks the results of both workshops into two sections. Section I: Engagement with the Internet Service Providers (ISPs) and Section II: Engagement with Public Institutions, Policy and Spectrum Lobby Groups.

TABLE OF CONTENTS

LIST OF FIGURES

SECTION I: ENGAGEMENT WITH THE INTERNET SERVICE PROVIDERS (ISPS)

1.1. OVERVIEW

Prior to the workshop, a Google form was shared with the various ISPs (Network Facility Providers - NFPs) to obtain information on the understanding of TVWS and Wi-Fi 6/6E and the pillars of regulations, technology, economic and market relevant to the adoption of spectrum sharing in Kenya.

1.2. RESPONSES ON THE GOOGLE FORM

The following formed the segments within which a set of questions were developed for the Google Form shared by the stakeholders:

i. Level of license based on the Communications Authority of Kenya (CA) tier-approach i.e. if the Network Facility Provider (NFP) is a tier 1, 2 or 3.
ii. The location(s) where the NFP operates and the access technology (ies) currently used to deliver Internet services to the end customers.
iii. Level of familiarity on the concept of Spectrum Sharing or DSA, the enacted DSA frameworks in Kenya as well as the licensing model(s), sections on the frameworks that require clarifications or changes as well as any recommendations.
iv. Understanding of TV White Spaces (TVWS) and Wi-Fi 6E (6 GHz Wi-Fi), any ongoing deployments, pilots, R&D studies, collaborations, future plans and relevant recommendations.
v. Technical understanding, capacity and skill in regards to TVWS and Wi-Fi 6/6E together with economic and market opportunity and challenges encountered as well as anticipated in driving implementation of both TVWS and Wi-Fi 6/6E.

Although we expected to obtain more feedback on the Google Form due to the large number of signups (over 30 groups) to the attendance of the workshop, only five responses were obtained from the following stakeholders:

- Dimension Data
- Dunia Moja Network
- James Turuthi
- KETRACO
- Telkom Kenya

A detailed response from these stakeholders is available through this link. In summary, there was only one NFP Tier 1 response on the Google Form – Telkom Kenya, two tier 2 NFPs and 2 tier 3 NFPs. Figure 1 shows the percentage of respondents according to tiers of operation.
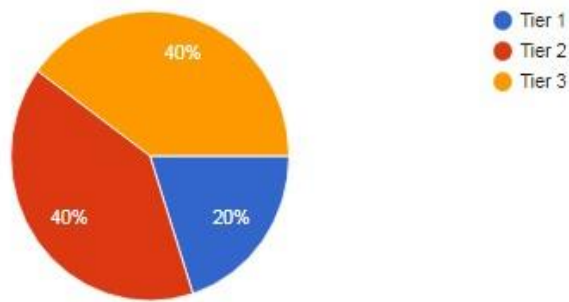
Figure 1: Respondents according to the NFP-tier levels

Most of their services are provided through Fibre, Satellite and Microwave technologies as well as point-to-point (PtP) wireless links. 80 per cent of these respondents (4 of them) provide services in all locations – urban, semi-urban and rural areas with only one of them providing services in the rural communities. Figure 2 shows areas of operation of respondents.
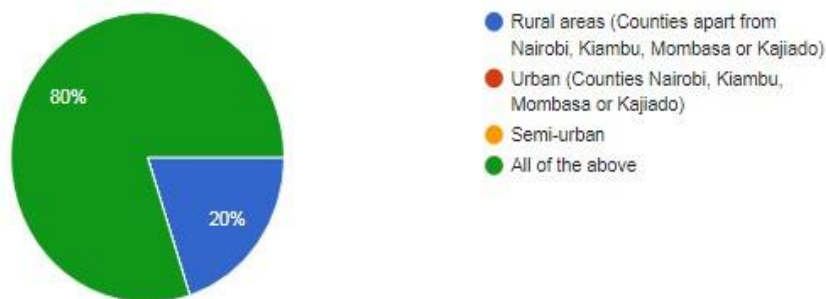

Figure 2: Areas of operation by the respondents

1.3.   RESPONSES ON DYNAMIC SPECTRUM ACCESS IN GENERAL

Figure 3 shows the familiarity of respondents with the concept of Dynamic Spectrum Access (DSA). 60 per cent of these respondents mentioned to be familiar with the concept of DSA with 20 per cent being totally unfamiliar with the concept and the last 20 per cent having a very limited understanding of the concept. This implies that a good percentage of Wireless Internet Service Providers (WISPs) in Kenya are not familiar with the concept of DSA or Spectrum Sharing in general.
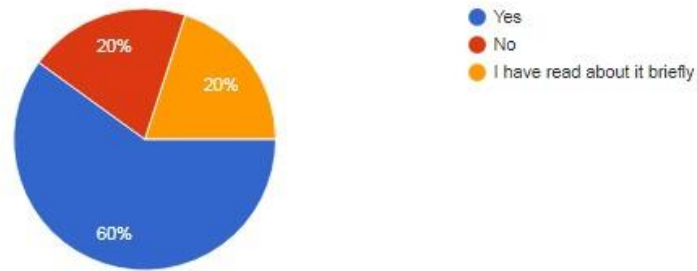
Figure 3: Familiarity with the Concept of Spectrum Sharing or DSA

Respondents were also asked whether they have any current dynamic spectrum access initiatives or if they have considered any future dynamic spectrum access initiatives. 60% said they currently do not have any DSA initiatives. This indicates that there is very low implementation, industry-driven R&D studies and adoption of DSA in Kenya.
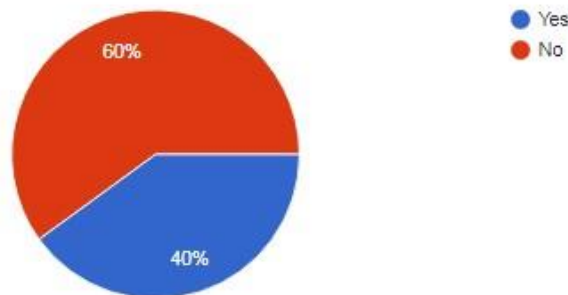

Figure 4: Respondents Feedback on DSA Initiatives

1.4. RESPONSES ON TV WHITE SPACES

In terms of the architecture of the regulatory framework for TVWS shown in Figure 6, all the respondents mentioned to be fully satisfied with it. However, all the respondents observed that the framework has some barriers with 20 per cent proposing more awareness to be created and another 20 per cent saying the framework should be treated as a live document needing improvements over time. Barriers to adoption of TVWS according to the respondents are shown in Figure 5.

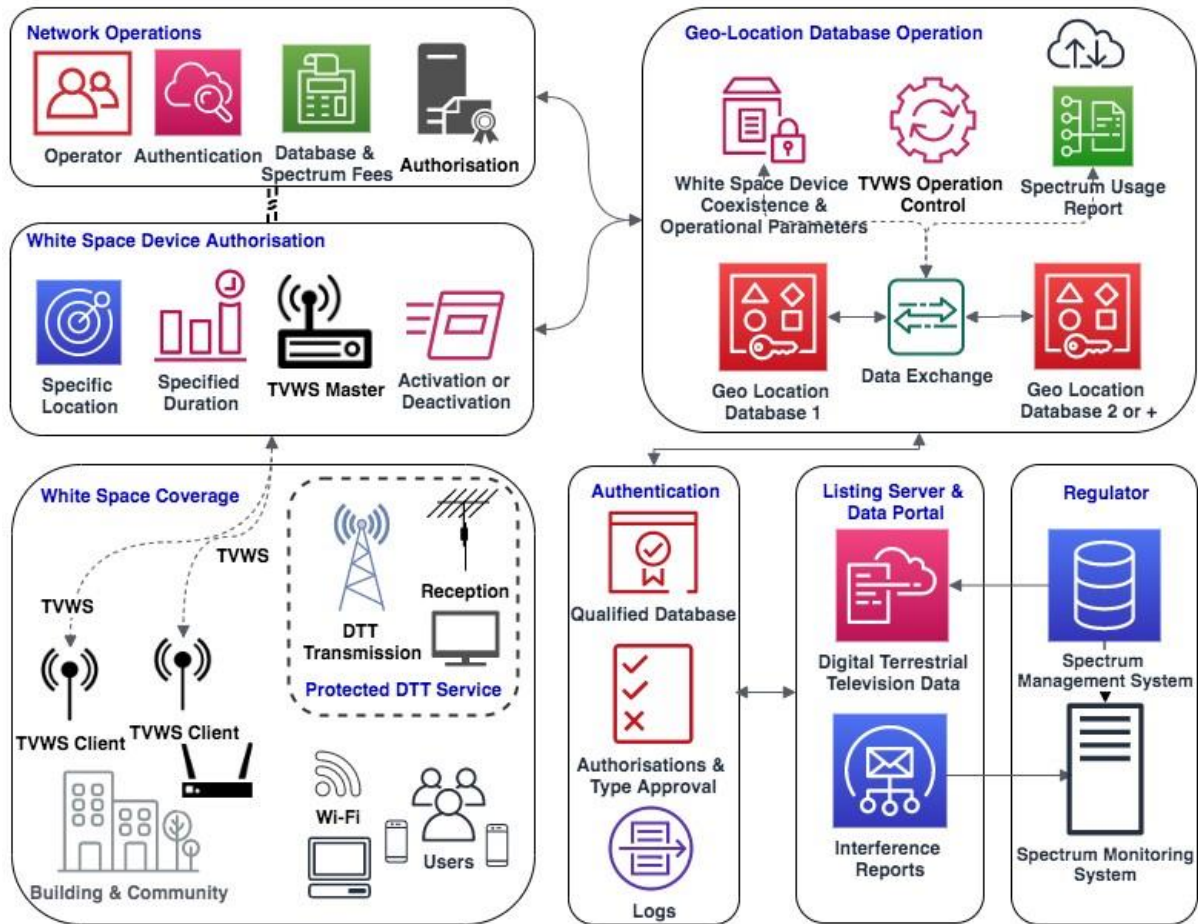**Figure 5: Barriers to adoption of TVWS according to respondents**

Figure 6: Architecture of the TVWS Regulatory Framework for Kenya

In terms of specific barriers, spectrum pricing and unhealthy competition were mentioned by one respondent. 80 per cent of the respondents, despite the barriers highlighted, divulged that they have intentions to deploy TVWS. The following were cited as other challenges to future TVWS deployments:

- "Market control maybe a challenge because regulator will be required to closely monitor the usage"
- "Availability of the spectrum at the desired location and the number of years (term) for the allocated spectrum"
- Availability of well trained personnel
- Vandalism

All the respondents said they would consider TVWS spectrum for future bandwidth needs. Respondents also gave the responses shown in Figure 7 when asked what kind of services they intend to use TVWS in their future deployments. It can be seen that majority of the stakeholders (80%) are very keen on using TVWS for rural broadband.

Figure 7: Potential TVWS Usage

80% of these respondents showed limited or complete lack of knowledge on deployment of TVWS. They gave the following feedback when asked about how their knowledge on the technical requirements of deploying TV White Spaces measured:

i.   "No experience at the moment and details maybe available for amendments after tests"
ii.   Minimal
iii.   "I am aware of the basic technical requirements"
iv.   Good
v.   Not aware

The following were the suggestions received on how to make TVWS equipment more affordable:

- "The government needs to subsidise or better still issue the equipment to Rural based ISPs that are connecting the unconnected"
- "Equipment should be tax free, encourage local manufacturers to develop some of the required equipment"
- Zero rate white space equipment

The following were mentioned as economic or market challenges that the respondents would face if they are to make use of TV white space technology:

- Price of equipment
- Availability and cost of user devices.
- Availability of grid power in the rural areas.
- Financial status of the intended users.
- Perceived low revenue per user
- Affordability

Summarily, initiatives need to be done to create awareness on the understanding of the concept of Spectrum Sharing and TV White Spaces (TVWS) as most of the ISPs surveyed clearly showed limited or complete lack of knowledge on TVWS and DSA in general. While most of the respondents alluded to the potential future initiatives to deploy TVWS, they clearly also pointed of the need to address the issues of cost of the equipment to deliver their initiatives, particularly with the focus of deploying the networks for rural broadband access.

1.5. RESPONSES ON WI-FI 6E

Figure 8 shows the overall response on familiarity with Wi-Fi 6E technology developments. 80% of the respondents said they are familiar with the technology developments on the 6 GHz Wi-Fi.
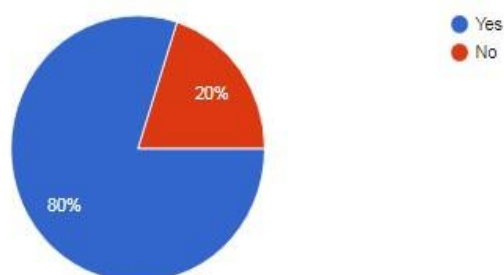

Figure 8: Familiarity with Wi-Fi 6E

Respondents provided the following suggestions in regards to the adoption of Wi-Fi 6E:

i.   Release of equipment requirements to guide the Kenyan market and the users.

ii. Need for Wi-Fi 6 pilots to be conducted as part of monitoring uptake and performance before any regulations are published.

iii. Need for more stakeholder engagement.

iv. Expansion of the band (To mean, full access to the 6 GHz band for Wi-Fi).

Some countries such as the USA, Mexico, Brazil and Canada have already authorised access to the full band while Europe has authorised access to the lower 6 GHz band (5925 - 6425 MHz). Respondents were asked their preference on whether access should be authorised for half or the full 6 GHz band based on their knowledge, experience and strategy. Their feedback, as shown in Figure 9, shows that they favour the access of the entire 6 GHz band to enhance Wi-Fi access.
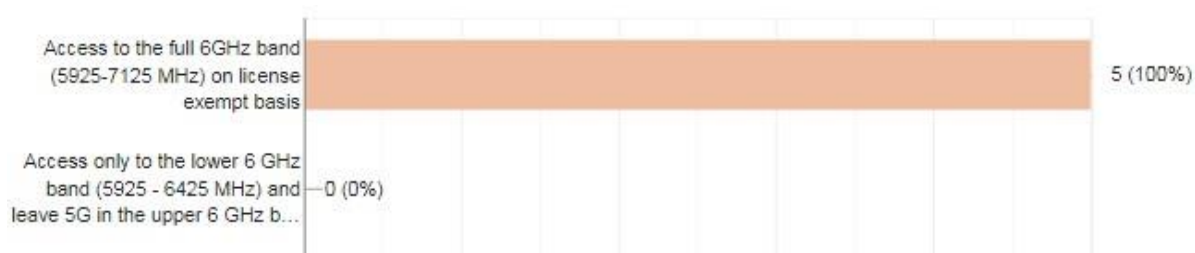

Figure 9: Stakeholder response on the full access of the 6 GHz Band

The following responses were provided as to the preference of accessing the 6 GHz band.

- "Full access is required so that there should no limitation on usage and equipment selection"
- "In most cases, new technologies come with a higher price tag, this limits its adoption. When there are additional restrictions e.g. licensing, then the adoption of that technology would end up being a premise for the well-off and not for everyone."
- "This is to increase access and affordability"
- "License exempt accessibility will help solve indoor internet access problems"

Respondents were also asked whether the currently existing 40 MHz Wi-Fi channels in the 5 GHz band are sufficient. Fig 10 shows the responses. 50% of the respondents said it is not sufficient and 25% said they find it as the only present alternative. This implies that most of the WISPs require more bandwidth for Wi-Fi.
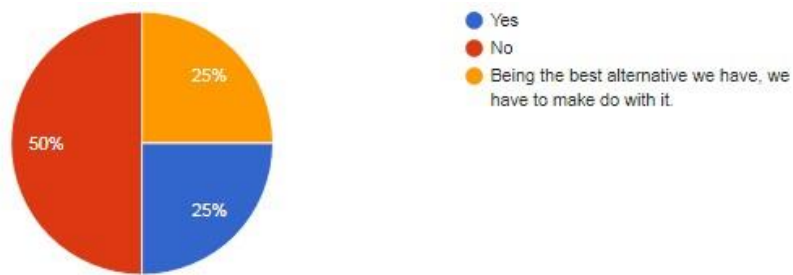
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