Alternative Social Media as an Emerging Social Network: Exploring Alternative Social Media Awareness in Nigeria

by

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ABSTRACT

Commercial Social Media (CSM) platforms like Facebook and Twitter have facilitated online communities and user-generated content, but their dominance has resulted in unethical practices. These include surveillance capitalist business models that exploit user data and "black-box" algorithms that perpetuate hate speech. Despite these concerns, some users remain hesitant to switch to non-commercial social networking platforms due to a lack of awareness or fear of losing their online connections. Although there is a growing uptake of Alternative Social Media (ASM) in the Global North, there is limited research on the awareness and use of ASM in the Global South, particularly sub-Saharan Africa. This research explores existing literature on the adoption of ASM in sub-Saharan Africa, examines the presence of any Fediverse platform in the region, identifies the obstacles that impede their use in Nigeria, and suggests potential remedies to these challenges. I utilized a mixed methods approach that integrated techniques from the Grounded theory methodology and Kleine's choice framework. I collected data through a review of ASM literature, a global audit of Fediverse tracking websites, and semi-structured interviews with current Fediverse administrators in the Global North and potential Fediverse users in sub-Saharan Africa. The findings from this study indicate that there is no literature referring to ASM in sub-Saharan Africa and no known presence of ASM platforms in this region. Based on the input from key informants and scholars, the factors that impact the awareness and use of ASM in Nigeria are: inadequate promotion of Fediverse platforms on traditional media channels, poor user interface, network effects, lack of innovation, and limited access to funding. Study limitations are the small sample size and the challenge of accessing a larger pool of potential participants without travelling to the country.

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Preface

This thesis is an original work by Elizabeth Nwachukwu. The research project, which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name "Alternative Social Media as an Emerging Social Network: Exploring Alternative Social Media Awareness in Nigeria," No. Pro00123927, November 9, 2022.

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CHAPTER 1 - INTRODUCTION

Despite various complaints about their business models and practices, Commercial Social Media (CSM) platforms like Twitter, Facebook, Youtube, and Instagram are widely known and used extensively by Nigerians for communications. Nigeria accounts for 82% of Africa's information and communications technology market and has witnessed several government interferences and surveillance about using CSM platforms, especially Twitter and Facebook (Bagwaiya, 2021; Busari, 2021; Burke, 2022; The Guardian, 2022). Still, there is little or no evidence of awareness of non-commercial social media alternatives like those on Fediverse platforms. This study investigates Alternative Social Media (ASM) platforms as emerging social networks and, more specifically, their level of awareness and use in Nigeria.

The emergence of Web 2.0 and CSM have given rise to many opportunities in connectivity, communication and work effectiveness, but not without challenges. Web 2.0 birthed email services like Yahoo and Google, replacing the traditional method of sending messages via telegraph or local post. It also developed highly sophisticated communication practices via social media platforms (Gehl, 2014b; Gehl, 2015). With social media platforms, individuals and groups can communicate on shared interests, witty inventions, and other subjects in real time. The convenience and effectiveness of Web 2.0 and its technologies were particularly evident during the peak of the Covid-19 pandemic when everyone had to stay indoors to control the spread of the dreaded virus. Organizations and individuals turned to platforms like Zoom, Microsoft Teams, Google Meet and WhatsApp to communicate, hold meetings and run businesses. It was a life-changing experience, enabling companies, groups and individuals to communicate effectively.

While social media platforms have afforded communication and connectivity, it has not been without several cons. An example is the centralization of these platforms' powers which enforces their control of user's data and privacy. Their quest for monopoly makes it almost impossible for users to migrate with their data or interoperate with other platforms. The platforms use algorithms to determine what users see on their feeds and influence their choices through advertisements (Gehl, 2018; Gow, 2021; Deibert, 2020; Cotter, 2020; Boyle et al., 2021; Zuboff, 2019; Zuckerman, 2020). Privacy issues are another problem as platforms use

subscribers' data to sell to marketing companies for profit-making (Zuboff, 2019). In the African context, Oyedemi (2019) points out the trends of benevolent capitalism in Africa through corporations like Facebook. The author describes benevolent capitalism as "a mode of capitalist exploitation designed as charitable acts in the pursuit of capital." Oyedemi (2019) explains that "as Africa emerges as a market for digital tools and services, it attracts the attention of global digital technology corporations and their leaders, who, under the guise of charitable offerings, explore the market potential of Africa's digital economy." (p.1)

CSM platforms like Facebook have been integrated into a specific Internet political economy. One based on user activity surveillance, capitalism, algorithmic manipulations, misinformation, environmental pollution, exploitation of natural and human resources, dubious influence on elections, data ownership debates, and the selling of user attention to an increasingly sophisticated internet marketing sector as a lucrative revenue-generating business model (Langlois et al., 2009; Hampton et al., 2017; Gehl, 2018; Gow, 2021; Stolzoff, 2018; Zuboff, 2019; Deibert, 2020; Cotter, 2020; Boyle et al., 2021; Zuckerman, 2020; La Cava et al., 2021; Vaidhyanathan, 2018).

This topic is relevant due to recent events related to practices implemented by CSM platforms that have seen them adopt policies based on user monitoring, algorithmic manipulation of content, and the sale of user attention to online marketing organizations. Users who wish to disassociate themselves from the effects of these practices cannot move to non-commercial platforms with their data. Most recently, the purchase of Twitter by the world's richest person, Elon Musk, thrust its Alternative Social Media (ASM) counterpart Mastodon into the limelight. Over two million users migrated to various Mastodon instances (as of December 30, 2022) to disassociate themselves from Twitter and the uncertainties that may follow its new administration (Gow, 2022; Shrivastava, 2022; Marcelline, 2022). Following this information, I explored the internet, recent literature, and local online news platforms in sub-Saharan Africa to see if the Global South had witnessed the same surge but found no trace of migration from Twitter to Mastodon. In Nigeria, there have been several allegations of government interference with CSM platforms and prosecution of its citizens because they posted content that the Nigerian government deemed unacceptable (Bagwaiya, 2021; Busari, 2021; Burke, 2022).

1.1   Purpose of Study

My research topic explores if any literature pointing to ASM adoption in sub-Saharan Africa exists. My study also explores if any Fediverse platform exists in sub-Saharan Africa, the barriers that hinder their use in Nigeria and possible solutions to the identified barriers in line with the following research questions (RQs):

RQ1 - Are there existing active users or active user groups on the Fediverse in sub-Saharan Africa?

RQ2 - What barriers exist to the awareness and use of Alternative Social Media (Fediverse) platforms in Nigeria?

RQ3 - How can these findings help us understand the factors that generally influence the use of Fediverse platforms in Nigeria?

This study will add to the current research by drawing attention to the low or nonexistent awareness and use of ASM in Nigeria, especially in light of many recent negative discoveries associated with CSM platforms. This study will shed more light on the purpose and features of ASM, highlight the barriers that hinder their use in Nigeria, and propose possible solutions to these barriers.

Nigeria is a relevant setting for this study because it has witnessed the negative effects of government interference in its citizen's use of CSM platforms; Nigeria carries the highest number of mobile connections and the highest number of internet users in Africa (GMSA Intelligence, 2022; Busari, 2021; Galal, 2022) hence the need to investigate if ASM exists and explore the barriers that can hinder its awareness and use in Nigeria. In addition, Nigeria's current population, according to Worldometers, is about 218 million, ranks the seventh-largest nation in the world and is the most populous country in Africa hence, my interest in exploring the awareness level of ASM in the country (Worldometers, 2022).

This study's limitations include the number and variety of critical informants interviewed (small sample size) and difficulty reaching a larger sample of potential participants without travelling to the country.

1.2 Preview Literature

While communications scholars like Robert Gehl (2015) agree that social media has given the public a voice and a platform to express their creativity as opposed to the mainstream one-way manner of communication (traditional media to the masses), CSM has intensified media centralization, control, censorship, surveillance, and commercialization, which ultimately enriches the owners of these platforms. Some of its impacts are evident in the following areas:

1. The Political Economy: The political economy of platforms focuses on surveilling users for revenue generation using algorithms (Nieborg & Poell, 2018). Algorithms shape the way we understand what we see on social media platforms and increasingly mediate everyday online lived experiences. (Cotter 2020; Coelho et al., 2016).

2. Data Ownership: CSMs own their users' data therefore, users cannot migrate or leave social media entirely with their data. The centralized network topology of CSM platforms makes it difficult for users to migrate their data to other platforms (Zuckerman, 2020; Gehl, 2018; Zuboff, 2019).

3. Content Sharing Effects: A set of technical, content-based, and economic factors collectively promote an environment where sharing and spreadable content – vis-a-vis the spread of information or misinformation – are highly encouraged (Mihailidis & Viotty, 2017; Boyle et al., 2021). Jenkins et al. (2013) argue that social media users are actively contributing to the viability of social media platforms through their online activities. The need for recognition and prominence, amongst other intentions, makes the free flow of information and misinformation prominent on social media platforms.

Alternative Social Media (ASM) or Fediverse platforms like Mastodon, PeerTube, Diaspora and Pixelfed are decentralized non-commercial platforms that give users control over their data and frown at advertisements and algorithms (Gehl, 2018). Any one person or group does not own them, and they enable interoperability between platforms (that is, one can communicate with other platforms and share videos, photos and messages between different platforms within the Fediverse (Kwet, 2020; Gehl, 2018; Gow, 2021). In all, there still exists a

gap in research regarding the existence, awareness of and barriers to using ASM in sub-Saharan Africa.

Researchers like Ethan Zuckerman (2020), Ronald Deibert (2020), Gordon Gow (2001; 2002), Shoshanna Zuboff (2015; 2019), and Robert Gehl (2015; 2018) have called for a critical examination of CSM platforms and their practices and have also introduced ASM as non-commercial platforms worth adopting. Communication scholars like Robert Gehl and Fenwick McKelvey have proposed that Canada's public broadcaster, the CBC, build a Mastodon server on the global network to provide access to Canadians who wish to disassociate themselves from mainstream social media (Gehl & McKelvey, 2022). These major research studies and reports influenced my thinking and this study.

1.3   Preview Methodology

Using techniques from Grounded theory and Kleine's choice framework methodologies, I performed a two-part study that starts with a Fediverse audit to determine the location of active Fediverse instances around the globe, specifically in Africa. Next, I used that information to select two groups of key informants for semi-structured interviews. The first group is a sample of those who know about managing an active Fediverse instance. The second group is a sample of those who use social media for organizational communications but may not be aware of Fediverse alternatives. I chose the two-part interview design to gain insight into different perspectives on what makes participants choose their social media platforms, probe if they will consider other alternatives, and what it takes for an ASM administrator to manage an instance while also creating awareness; this became the intended practical outcome of this study. I considered other theoretical frameworks like alternative media theory and platform studies or conducting surveys. However, I rejected the approach as I felt they would not provide rich qualitative data on how and why participants choose their social media platforms and the barriers to using ASM.

I chose techniques from Grounded theory because I know little about Fediverse platforms, have no knowledge of their existence and level of awareness in my home country, Nigeria and would like to create new knowledge in this study area. The foundation of Grounded

theory as a technique is that the researcher would construct new knowledge based on the information gathered throughout the iterative data collection and analysis process (Denscombe, 2010). Grounded theory is characterized by a systematic, iterative data collecting and analytical process in which categories and concepts emerge and a theory is produced. Iterative data analysis, in which data is evaluated as it is gathered so that the researcher may make adjustments as needed to obtain more understanding of emerging categories, is essential to constructing new knowledge (Birks & Mills, 2015).

Kleine's choice framework is also suited to my research questions because I aim to explore how key informants chose their social media platforms and whether they will consider exploring emerging Fediverse platforms. Kleine's choice framework stems from a comprehensive vision of development that relies on Amartya Sen's capabilities approach (Sen, 1999). According to the capabilities approach, development is about gaining independence in all aspects of life (Kleine, 2010). Kleine's choice framework focuses on general development processes, aiming to understand how growth occurs systemically via choice and is founded on the premise that consumers make decisions based on different factors connected to their goals and requirements.

1.4 Summary

My research study aims to investigate whether or not there are existing active users or active user groups on the Fediverse in Sub-Saharan Africa. My study also explores the barriers to the awareness and use of Alternative Social Media (Fediverse) platforms and how these findings can help us understand the factors that generally influence the use of Fediverse platforms in Nigeria. The significance of my study is to identify where (if any) Fediverse platforms exist in Africa and draw attention to the benefits and obstacles associated with adopting non-commercial social media platforms in Nigeria.

This research study begins with a brief overview of social media and its network topologies, discusses the theoretical approaches to the study of platforms and describes the emergence of and barriers to the use of ASM as well as possible solutions to address these barriers. It will conclude by highlighting critical insights about social media platforms with more

emphasis on ASM and possible solutions to the lack of awareness of the existence of ASM and its use in Nigeria.

This thesis is structured in five parts, starting with this introduction. In Chapter 2, I will review relevant literature to ascertain if any research study pointing to ASM in sub-Saharan Africa exists and to establish the case for embarking on my research study. After that, I will embark on a two-part research design in chapter 3 that begins with an audit of Fediverse instances worldwide to determine if any instances exist in sub-Saharan Africa. The initial data gathered through the literature review and Fediverse audit formed the basis for conducting eight (8) semi-structured virtual interviews. Techniques from the Grounded theory research design and Kleine's choice framework are used and described in this methodology chapter. The findings and discussion chapter (see Chapter 4) details the findings from the Fediverse audit and interviews conducted, along with the analysis of both results. Finally, I will conclude this study in Chapter 5 with key findings, limitations of the research and recommendation for future research in this area.

In the next chapter, I begin with a review of relevant literature on ASM platforms and explore if any literature points to ASM in sub-Saharan Africa.

CHAPTER 2 - LITERATURE REVIEW

The scholarship on alternative media dates back to the 1960s and 1970s as researchers examined movements opposing mainstream corporate or state media (Kidd, 1999). These forms of alternative media aimed to give the masses a voice and the power to participate and contribute to media production with their respective media content (Jenkins, 2006). As alternative media evolved, it adopted policies that classified it as Commercial Social Media (CSM) platforms to remain sustainable and profitable. Recently, new Alternative Social Media (ASM) platforms have emerged in a bid to take back alternative media from their mainstream counterparts.

To date, the user population of CSM platforms exceeds that of ASM. Also, ASM may be nonexistent in sub-Saharan Africa, particularly Nigeria, despite the emergence of ASM that support non-commercial social media practices. Nigeria has experienced negative government interference on CSM platforms, especially with Twitter, which is widely known and used for microblogging of latest news and pertinent discussions around all facets of life. Citizens rely on CSM platforms to access news, entertainment and communication. In June 2021, the federal government of Nigeria banned the use of Twitter. The government blocked Nigerians from accessing the platform because Twitter took down a post by the Nigerian president, which Twitter claimed violated its rules. The media has also alleged that the federal government arrested and prosecuted individuals (its citizens) who spoke out against their policies or practices. Still, I found no evidence of ASM platforms in a country that accounts for 82% of Africa's information and communications technology market (Bagwaiya, 2021; Busari, 2021; Burke, 2022; The Guardian, 2022).

My research study explores Alternative Social Media platforms as an emerging social network and, mainly, their level of awareness, if any, in Nigeria. This study also aims to explore the existing literature that points to one specific type of ASM, which is the Fediverse in sub-Saharan Africa, if any. Another goal is to assess the extent to which people are aware of and use Fediverse platforms in Nigeria and, finally, to establish the case for embarking on my research project, which aims to answer the following research questions (RQs):

RQ1 - Are there existing active users or active user groups on the Fediverse in sub-Saharan Africa?

RQ2 - What barriers exist to the awareness and use of Alternative Social Media (Fediverse) platforms in Nigeria?

RQ3 - How can these findings help us understand the factors that can generally influence the use of Fediverse platforms in Nigeria?

This literature review will begin with an overview of the field of study and methodology of the literature search process, including a summary of the search criteria and procedures used to choose the sources studied. This section explains the process used to choose the articles, the keywords employed, the web databases used, etcetera. Next, I will review existing literature describing social media platform's evolution, network topologies, and theoretical frameworks to comprehend better, the platforms and the factors influencing their acceptance and use. After that, I will analyze my findings from the literature review, highlight how the literature informed my research questions, and conclude by confirming that no literature that points to ASM in sub-Saharan Africa exists.

2.1 Overview of the Field of Study and Methodology of the Literature Search Process

Every studied article was chosen based on a publication period between 2000 and 2022, as more articles relating to alternative media, CSM and ASM platforms were published around this time frame. I also included some older articles from 1974, the 1980s, and the 1990s, as they contain rich information about alternative media. The "snowballing" process of bibliographic searching was constructive in providing more bespoke information linked to my research topic. I downloaded 97 peer-reviewed articles, published reports, and papers and imported them to Zotero. I also referenced online publications from Social Science Research Network (SSRN), Sage, The Conversation, and some Fediverse tracking websites. These articles were sources from database portals such as Google Scholar, JSTOR, EBSCOhost, ProQuest, the University of Alberta Online Library, and Scopus.

According to Oliver (2012), some factors to consider when deciding which article to include or exclude in a literature review include the citation rates, peer review, the article's methodology, and the publication's recency. Some of the keywords used for my search include, but are not limited to, Alternative social media, Alternative media, social media, Fediverse, citizens' social media, and surveillance capitalism; after that, I gradually narrowed it down by adding words like adoption, use, platform studies, network effect, and so on in advanced search. Search strings like "social media" brought up over 190000 results; therefore, I had to narrow my search by selecting peer-reviewed articles, articles written in English, and more recently published articles. The critical literature informs my research question and design by providing detailed information on social media platforms, alternative media, its characteristics, topology, and practices in the Global North. From this search, I could not find any literature that points to ASM in sub-Saharan Africa.

The study inclusion criteria were: (a) studies that focused on the practices or influence of social media in general or Commercial Social Media (CSM) platforms specifically, (b) Studies that focused on ASM, its barriers, promotion or adoption, (c) Studies that looked into terms like capitalism, surveillance, network effect, platform studies, Fediverse, Algorithms, ASM in sub-Saharan Africa or Nigeria, and so on.

The study exclusion criteria included: (a) Digital literacy, (b) Media education (c) Studies that focused on other non-commercial social media platforms that are not on the Fediverse and not exactly ASM due to their structure and business model. These studies were excluded because they did not provide information related to non-commercial social media platforms. Some other works of literature were discarded because the information provided was irrelevant to my research interest or question.

The literature informs my research question and design as I was curious to discover if any literature points to ASM in sub-Saharan Africa and if Fediverse instances exist in Africa. I also want to explore the barriers to the awareness and use of Alternative Social Media (Fediverse) platforms in Nigeria and how these findings can help us understand the factors that can generally influence the use of Fediverse platforms in Nigeria. Literature reviews will help provide an

overview of the work already done on my research interest (Birks & Mills, 2015). To achieve this, I will use techniques from Grounded theory and Kleine's choice framework to gather data through a scoping search of online databases, a rigorous search of Fediverse tracking websites, and, finally, interviewing key informants.

Based on my initial findings from the search, the literature on ASM was typically located in Humanities conference papers, external publications, and various university presses before 2000. In 2001, ASM literature was mostly found in locations like Sage publications and ProQuest Dissertations and Thesis. Most recently, more articles have been published in online academic and research journals like The Conversation, Journal of Media and Communication Research, and SSRN papers as excellent sources for academic writing.

The following literature review serves as a picture of the early phases of information collection to guide my investigation.

2.2 Review of Literature

The literature on ASM first appeared in 2014 and was titled "Why we need alternative social media before it is too late" by Christian Fuchs. He argued that the constant backlash of CSM shows that we need alternatives (Fuchs, 2014). Based on my findings, some of the leading researchers of ASM include Robert Gehl, Gordon Gow, Anne Helmond, Ronald Deibert, Ethan Zuckerman, Nick Srnicek, Christian Fuchs, and Shoshanna Zuboff as evidenced by the extensive studies on this area of research and the resulting number of articles they have published. The themes guiding their work focus mainly on drawing attention to the adverse effects of CSM practices and their business models while raising awareness of non-commercial social media alternatives by defining what ASM is and providing in-depth information on the network topology and characteristics of ASM. Most recently, the acquisition of Twitter by Elon Musk has seen a growing number of subscribers showing interest and migrating to ASM platforms, especially Mastodon; the Twitter takeover has also seen a growing body of research through online publications about Fediverse platforms, how it is governed, some barriers to its awareness and use, and how individuals can join them through the Fediverse (Gow, 2022; Gehl, 2022; Shrivastava, 2022; Marcelline, 2022).

Scholars have proposed numerous theoretical approaches to improve our understanding of platforms and their acceptance and use. Leading researchers in ASM have incorporated several approaches, such as alternative media theory, software studies, platform studies, social identity theory, uses and gratification theory, and others. They are described briefly below:

1. Alternative Media Theory: Couldry and Curran (2003) define alternative media as any media formation which challenges the strength of media influence in varying directions or patterns. Gehl posits that alternative media theory appeals to media tools, agencies, and processes that stress evaluation, teaching mode, and legal status. ASM platforms such as Pixelfed, Diaspora, PeerTube, and Mastodon have emerged as alternatives to CSM because they protect user privacy by prohibiting advertisements or third-party affiliations, allow users to migrate with their data (data ownership belongs to users), eliminate surveillance regimes, and operate decentralized network topologies as well as transparent governance mechanisms (Gehl, 2018; Zulli, Liu and Gehl, 2020).

2. Software Studies: Software studies focus on the technicalities and layers of abstraction that make up platforms such as operating systems, algorithms, network topologies, interfaces, machine languages, the software/hardware relationship and in some cases, the hardware platform itself. Gehl (2015) explains that a critical analysis of software shows that it removes part of abstraction and feeds them into some social, political and organizational spaces for assimilation.

3. Social Identity Theory: This study focuses on consumers' perspectives of themselves on social media, why they continue to use their social media profiles and variables that may motivate them to transition to ASM platforms. Tajfel (1974) posits that users achieve social identity through the knowledge and recognition related to their membership in a group and their perceived status.

4. Uses and Gratification Theory (UGT): Blumler (1979); Katz, Haas, & Gurevitch (1973) consider the intrinsic factors (social and psychological) that motivate users to adopt social media, with the Uses and Gratifications Theory (UGT). For instance, users accept the

media as a source of informational and educational resources for fantasy and escapism and as a means to connect or disconnect from reality; hence, they turn to it to satisfy their yearnings (Charney & Greenberg, 2002; Diddi & La Rose, 2006; Kaye, 2004; Ko, Cho, & Roberts, 2005; Lin et al., 2017). This study focuses on the needs and motivations that draw users to social media platforms (Zolkepli & Kamarulzaman, 2015). These needs are intellectual, stress release, emotive, personal and socially integrative (Cheung et al., 2010; Ko et al., 2005; Lee & Ma, 2012; Papacharissi & Mendelson, 2011; Smock et al., 2011).

2.2.1 Overview of Alternative Media Scholarship

According to Gehl (2015), the "media" as we used to know it began with print, radio, and television, a monopolistic means of communication that never allowed the public to participate or create their media. The rise of citizen journalism resulted in a direct challenge to media authority and a quest for alternative procedures by which material might be generated, delivered, and read, giving rise to alternative media. Dowmunt & Coyer (2007) define *alternative media* as digital or paper means of communication, free from external control generated by non-political nationals to provide information different from the significant communication agencies. Alternative media has played a role in de-monopolizing mainstream corporate or state media and empowering the masses to create and publicize their media content. Alternative media has enabled the voices of the public to be heard and to reach a broad audience, thereby enabling users to evolve from being passive mass media consumers to active, participatory consumers by deciding on which posts to view and reacting to posts through likes, comments, amongst other activities (Jenkins, 2006).

Influential scholars like Robert Gehl, Gordon Gow, and Anne Helmond have published several articles to draw the public's attention to the features, values and practices that back ASM. Robert Gehl is an associate professor with the Department of Communication and media studies at York University. He also chairs Ontario research digital governance for social justice and is interested in contemporary communication technologies. He has published many articles and journals around new media & society, communication theory, social media + society, and media, culture and society. Gordon A. Gow is a Professor of Communication Studies at the University of Alberta. He has led participatory research projects involving public safety communication,

ICT for development, the political economy of communication, communication policy & regulation, electronic media history, and many others. His research and teaching interests revolve around the social impact of digital media and technology. Anne Helmond is an Associate Professor of Media, Data and Society at Utrecht University. Her research interests include digital methods, software studies, platform studies, platformization, App studies, critical data studies, and web history.

2.2.2   Emerging Scholarship on Alternative Social Media

Recent scholarship concerned with alternative media has begun to focus on online communications and social networking sites in particular. The development of the internet has seen almost all alternative media sources migrate to online content platforms (O'Connell, 2013). Steinberg & Li (2017) define *content platforms* as websites or app-based media interfaces where users can create their media content or socialize by commenting, sharing and contributing to other topics of interest. In the process of alternative media migrating to online media platforms, they derailed their central values by going commercial in their quest for increased profitability and market dominance, engaging in the same practices they condemned in the first place.

Gow (2022) has traced the evolution of the term ASM to earlier works, starting with Fuchs in 2014, where he described ASM as a non-commercial medium for broadcast. Gow (2021) explains that the phrase has been used to describe any platform that replaces well-known social networking websites. For instance, the so-called "alt-tech" sites, like Gab, Twister, Bitchute or Parler, were regarded as "alternative" social media that attracted users who left or were banned from mainstream social media platforms for various reasons. However, further studies reveal that these "alt-tech" sites were linked to unethical practices like promoting violent extremist content, advertisements, and privacy breaches. Gehl (2015) gives ASM platforms a unique meaning and describes them as "an oppositional movement" to the traditional commercial social media, characterized by business practices that prohibit advertisements, network structures that any one person does not own, a forum for other subscribers to participate in the decision-making of platform administration and access to the open-source codes to install instances on personal servers. These practices negate most of the concerning practices that CSM platforms and other "alt-tech" sites have come to be known for (Gow, 2021, p.9).

Robert Gehl has been a leading scholar in ASM works of literature, with several publications (Gehl, 2010; Gehl, 2015; Gehl, 2018; Gehl, 2022) establishing parameters to define and examine ASM as an oppositional challenge to their CSM counterparts. Gehl & Synder-Yuly (2016) argue that ASM sites are essential because they grow novel means of using dedicated instances and applications to communicate and collaborate with other users, signifying new ways to interact and understand communication frameworks that give meaning to our lives. Gehl (2015) describes ASM platforms as "technologies built as a critical response to CSM; they are new social media systems that replicate positive features of CSM while removing negative features." (p.5).

Atton (2002a) highlights the characteristics of alternative media as the use of primarily free developing technological infrastructures such as open-source and user-generated content, low cost of production, the streamlined publication process, its aesthetic form and decentralized network topography. Gow (2021) describes ASM as social media platforms that use decentralized network architectures, business strategies devoid of commercial activities, and collaborative production methods. The author posits that ASMs are designed to keep users' interests in mind and act as a substitute for mainstream social media. The emerging literature has established some basic parameters that differentiate ASM from CSM in relation to their topology, business model, and values.

2.2.3   Comparing the main differences between CSM and ASM Platforms

Gow (2021) simplifies and summarizes the main characteristics and values that differentiate ASM from CSM platforms in a table format (p.14).

Table 2.2.3.1

Comparison of Key Distinctions between CSM and ASM Platforms

Facet	CSM ⇔ ASM	
Technology	Centralized network topology; limited or no access to software code; opaque algorithms; proprietary databases and restricted API access; proprietary code base;	Decentralized network topology; open access to software, limited use of algorithms; open APIs; open-source code base;
Revenue & Growth	Advertising or other forms of monetization of user data; centripetal growth through the ever-larger base of users captured on the platform;	Donations, crowdfunding; rhizomatic growth through many independent but interconnected nodes; sustainability uncertain
Governance	Rules set centrally and enforced by corporate stakeholders; paid moderators or AI-based systems;	Community-based rulemaking; moderation practices shaped by community norms and values;
Ideology	Prioritization of shareholder value; control over user data and limits to data portability; bigger is better;	Prioritization of community interests; data portability and user control over data is valued; limits to growth based on resources and community priorities;
Affordances	Functionality conforms to data structures and design logic intended to serve commercial objectives;	Functionality to protect privacy while supporting flexible self-representation; user-modifications acceptable and encouraged;

Source: Gow, G. (2021). Turning to Alternative Social Media. In SAGE Handbook of Social Media Research Methods, edited by L. Sloan and A. Quan-Haase. London: SAGE.

Gehl (2015) posits that ASM platforms have emerged as a critical response to perceived problems of CSM platforms with their three fundamental features (p.5).

1. Their anti-advertising stances: A key feature of most ASM platforms is a refusal to participate in the leading political economy of the corporate internet, a refusal that is most clearly marked by the absence of algorithms and lack of advertisements on sites such as Pixelfed, PeerTube, Diaspora, and Mastodon. ASM platforms are designed to protect user privacy by prohibiting the use of algorithms, advertisements or third-party affiliations (Gehl, 2015; Deibert, 2020; Zuckerman, 2019; Al-khateeb, 2022). This design creates equality where the visibility of content is concerned and not one that the highest bidder determines. Everyone has an equal chance to speak and contribute on the platform.

2. Pedagogies of network topology and code: ASM does not just give users a platform to express themselves freely, have privacy and own their data; they provide a decentralized approach that gives the public a chance to own their instance (a social media platform

within the federated ASM platform) and guide users to practices such as coding, administering, and organizing the very systems that allow for those interface-level activities through Distribution (Peer-to-Peer) and Federation. ASM platforms offer access to underlying technologies because they are built with free or open-source software (Gehl, 2015).

3.   Deployment of surveillance practices: ASM platforms are anti-surveillance and boast of privacy. Gehl (2015) argues that ASM platforms are experiments that combine surveillance, privacy, and identity practices differently. ASM administrators negotiate their surveillance practices with their users, as against CSM, which negotiates theirs in consultation with marketers and law enforcement. Distributed and federated systems like Mastodon, Pixelfed, and Diaspora are designed so users can install them on whatever server they please; doing so reduces the makers of these systems into users rather than influential administrators. The opportunity for users to manage their servers is the essence of the decentralized model: the ability to observe others is disconnected from Facebook's and Google's centrally controlled star topology and redistributed to individual servers, client devices, and users-cum-administrators (Gehl, 2015).

ASM platforms generally run decentralized, distributed network topologies based on free/libre and open-source software (FLOSS) (Gow, 2021; Anderlini & Milani, 2022). ASMs features give users the freedom and ability to connect peer to peer or from one instance to another, using one of two approaches: Distribution or Federation. The ability to connect is made possible by the ActivityPub protocol.

The ActivityPub protocol enables interconnectivity and interaction between instances. The ActivityPub protocol provides a suite of services that act as substitutes for the mainstream social media platforms we know. For example, PeerTube is a free and decentralized alternative to video hosting platforms like YouTube. Pixelfed stands for image-based social networks like Instagram, while Mastodon and Pleroma are open-source alternatives to Twitter (Caelin, 2022). ASM platforms on the Fediverse exist as different communities on different servers, communicating and cooperating, promoting interoperability rather than existing solo (Al-

khateeb, 2022). The foundation of the Fediverse is a language used to exchange messages and communicate based on open standards. It is precisely because of this openness —of the protocols used to compose and dispatch messages— that servers can communicate with one another potentially without restrictions, aside from those they place on themselves (Anderlini & Milani, 2022).

Distribution allows users to connect via peer-to-peer connections; here, there are no central servers; instead, personal devices connect to the network, store data, and perform as servers and clients simultaneously. Federation allows users to store their social media data in their servers or servers they connect to. These servers communicate with other servers within one or more platforms operating within a specific ASM platform (intra-operability) or other Fediverse platforms (inter-operability).

La Cava et al. (2021) posit that Decentralized Online Social Networks (DOSNs) are built upon two key aspects: the accessibility of open-source software, which permits anybody to set up their server, so eliminating centralization, and the presence of specialized communication protocols which allow for seamless interconnections between servers that use the same protocol. A global community of individuals creates Fediverse networks without the help of any corporations or government agencies (La Cava et al., 2021). Platforms on the Fediverse are described by Al-Khateeb (2022) as networks that guarantee personal data ownership and control over generated content because only the owner of the content can do what he or she wants with it. They also provide more privacy by allowing users to create accounts without having to link them to their real identities via emails or phone numbers, which prevents showing users targeted advertisements.

To summarize, ASM platforms are self-governing platforms where users choose posts they wish to see and groups they wish to connect with and have a say in the platform's policies (Kwet, 2020; Gehl, 2018; Gow, 2021). ASM also allows users access to the server's software codes and encourages users to contribute to decision-making when it comes to running the instances. Users can delete their information from these platforms if they migrate to other platforms or discontinue using a particular platform.

In contrast, Anderlini & Milani (2022, p.182) posit that CSM operates a centralized topology of network infrastructure. According to scholars, a central server is directly connected to one or more client nodes in a centralized system's client/server architecture. "Slaves" refer to the client, and "master" refers to the server. The most often used system in many organizations is the server-master/client-slave design, where clients-slaves request business from server-masters and receive a response. The client-slaves are not allowed access to the software codes of the server, nor are they allowed to contribute to decision-making when running the platform. This system implies a relationship of submission, where users conform to the whims and rules of centralized systems and the owners of these centralized systems, in turn, do whatever they please with users and the data that users (their subjects) produce. Users can not migrate to other platforms with their data or delete their information entirely.

Zuckerman (2020) argues that CSM platforms run centralized network topologies that work toward keeping users enclosed within their networks. They enclose users by providing a suite of services that make it difficult to pair with other services (Gehl, 2018). Platforms like Google and Facebook have applications that keep users lured and 'locked in' on their platforms. With this practice, they draw more user activity under corporate surveillance systems, which they, in turn, use to study users. With time, they can condition their behaviour as bait to advertising companies for revenue generation (Andrejevic, 2007; Zuboff, 2019). The big five technology companies, since their existence, have been making efforts to position themselves as the core' social infrastructure of the web and mobile ecosystems; they share a common long-term vision "to be the operating system of our lives" (Vaidhyanathan 2018, p. 99; Hoffmann et al., 2018; Nieborg & Helmond, 2019). Gehl (2018) summarizes CSM's makeup when he states,

> "CSMs are centralized, American, for-profit firms that deploy algorithms to intensify content production by users appropriating and selling the resulting data to marketers and advertisers, supported by hegemonic governments." (p.5).

2.2.4   The Case for ASM Platforms

ASM Platforms are motivated by values and reactions like free speech, privacy, data portability, community-based rulemaking, collective moderation of the instance by volunteer

users, and the absence of algorithms and advertisements in opposition to the practices of mainstream social media (Gow, 2021; Rogers, 2020). Gehl (2018) describes ASM as "small-scale social media platforms" comprising decentralized networks allowing interoperability, privacy, cooperation, and data ownership. The user rate of ASM is low compared to CSM; nonetheless, they tend to carve a niche for themselves through the type of content they create, and users are allowed free reign on their platforms (Kor-Sins, 2021). Some examples of ASM or Fediverse platforms include Mastodon, Pixelfed, PeerTube, Friendica, Diaspora, WriteFreely, Pleroma and so on.

Gehl (2015) claims that ASM differs from CSM platforms regarding their values, structure, functionalities, source code access, and interest groups. Their purpose is to fight the vendor lock-in of the mainstream social media ecosystem. Gehl (2015) further explains that these platforms are colloquially known as the Fediverse, "a portmanteau of 'federation' and 'universe.'" The Fediverse is a term which refers to federated social networks that run on free, open-source software running on different servers around the world (Al-khateeb, 2022). Gow (2021) describes the Fediverse as a decentralized network of autonomous nodes or instances that can communicate with one another and exchange data using the ActivityPub protocol. Anderlini & Milani (2022) define the Fediverse as

> "a network of servers that share a common vocabulary and syntax (the open standard activity streams) and a common way to interact between each other (a shared protocol, in this case, the open standard ActivityPub, meant for decentralized social networking)." (p.179).

2.3   Analysis of Findings

Much of the research on ASM has looked at the evolution of Alternative Social Media platforms and their network topology (decentralized and distributed). Researchers have also explored the features of ASM, such as revenue models that exclude advertising and the adoption of peer production methodologies with community-oriented governance practices. Research on ASM has also looked at the values of ASM (privacy, anti-surveillance, community-based

rulemaking) while drawing attention to the adverse effects of CSM platform's practices and their business models (Gehl, 2018; Gow, 2021; Zuboff, 2019).

Most recently, the acquisition of Twitter by Elon Musk has seen a growing body of research advocating for the use of ASM platforms and how individuals can join them through the Fediverse. ASM scholars have expressed concern over the low subscriber population of ASM in the Global North, shedding light on the steps required to join different platforms on the Fediverse (Gow, 2022; Shrivastava, 2022; Gehl, 2022) while spotting possible barriers to its awareness and adoption. Some barriers identified include fewer high-profile influencers and a non-friendly user interface, making joining an ASM instance a 'daunting task.' (Shrivastava, 2022). In addition, prominent scholars have emphasized the impact of CSM's practices and business models compared to ASM, to draw the public's attention to the effects of using social media in general while suggesting non-commercial alternatives, all focused on the Global North. However, very few (if any) studies have been done on the uptake or awareness of ASM in the Global South, particularly in sub-Saharan Africa and Nigeria.

This literature review provides insights into what Alternative Social Media is and possible barriers that hinder the awareness and use of ASM (Fediverse) platforms generally through the information provided on its topography, characteristics, values, and impacts. These findings can also be applied in the Nigerian context as possible factors that generally influence the awareness and use of Fediverse platforms. However, it fails to provide information on the existence or use of Fediverse platforms in Nigeria.

My study aims to address this gap in two stages; first, by identifying locations where ASM users are situated worldwide and affirm if any ASM instance(s) exists or are being used in sub-Saharan Africa through an audit of three Fediverse tracking websites. Secondly, I aim to identify opportunities and challenges to adopting ASM in Nigeria by interviewing two groups of key informants. Nigeria is a crucial region for research on this subject because of the government's involvement with CSM platforms like Twitter, which makes it a potential candidate for adopting ASM as they are free of political interference (privacy) and supports free expression within stipulated codes of conduct (Gehl, 2015). The Twitter ban by Nigeria's federal

government in 2021 and several allegations of user prosecution for tweets that the government termed "offensive" could have made the country a likely candidate for ASM adoption, but this failed to happen, possibly due to a lack of awareness of the existence of ASM in Nigeria (Bagwaiya, 2021; Busari, 2021; Burke, 2022). Instead, citizens were forced to use private VPNs to continue having access to the platform or not have any access.

Information Communication Technology (ICT) has energized the development of Nigeria's social and economic empowerment (Gyem, 2022). Nigeria's ICT sector rapidly places the nation as a force to reckon with among African countries. Nigeria's ICT industry is the nation's fastest-growing sector, accounting for 82% of Africa's information and communications technology market (The Guardian, 2022). Nigeria's Information and Communication Technology sector proliferated in 2023, driven by its youthful population and demand for ICT products and services (Eromosele, 2023). This fact is further highlighted by the large number of fintech firms in Nigeria which use ICT to bridge financial gaps through digital financial transactions, yet, there is little or no information that shows that ASM exists in this region.

The design of this study is informed by techniques used in Grounded theory and guided by Kleine's choice framework from the field of ICT4D (ICT for Development).

2.3.1 Grounded Theory. The foundation of Grounded theory as a technique is the idea that the researcher would construct a theory based on the information gathered throughout the investigation (Heath & Cowley, 2004). Martin & Turner (1986) draw attention to the value of Grounded theory as a research methodology due to its capacity to comprehend and find ways of making things better at work. Goulding (2002) suggests that "Essentially, the methodology is most commonly used to generate theory where little is already known or to provide a fresh slant on existing knowledge" (p.6). Denscombe (2010) explains that with Grounded theory, concepts and theories emerge from data through continuously evaluating ideas with available data and enhancing emerging ideas and techniques by comparing them to new data obtained particularly for the purpose.

In particular, my study is not a fully-fledged Grounded theory design but will draw selectively on the concept and technique of "theoretical sensitivity." According to Straus and Corbin (1990), theoretical sensitivity pertains to a researcher's personal interpretation of data, which is influenced by their prior knowledge and exposure. Sources such as literature reviews, research studies, and professional experience can all contribute to shaping this understanding. Birks & Mills (2015) posit that the researcher's theoretical sensitivity, which considers the whole of the researcher's experiences, is a crucial component of the grounded theory technique. The scholars also suggest that theoretical sensitivity measures a person's understanding of their own thinking and intellectual background and the theory they have learned, internalized, and now use in everyday thought (Birks & Mills, 2015). This principle is significant as I have prior knowledge of my research topic through the articles and news sources I read before starting my research study. I hope to refine my inquiry accordingly as I learn more about my research interest.

Hoare et al. (2012) posit that gaining theoretical sensitivity, a crucial idea in grounded theory, also includes navigating obstacles, directing participants using open-ended interviews, and tracking data threads with other participants. Foley et al. (2021) argue that in grounded theory, data creation is a collaborative process that incorporates the researcher and participants at all phases. As such, the interviews I plan to conduct will help acquire theoretical sensitivity as I use the choice framework to construct the interview questions and guide key informants to provide data based on their knowledge and choice of social media generally.

Techniques from Grounded theory are a good fit for my study as they will inform and guide my data collection and analysis process for the Fediverse audit I plan to conduct to determine where ASM instances are located in sub-Saharan Africa (if any), study the meanings of social media use to people and get insight into their experiences using it, to get insights into the factors that can generally influence the use of Fediverse platforms in Nigeria.

2.3.2 Kleine's Choice Framework. Kleine's choice framework emerges from a broad view of development which builds on the capabilities approach originally devised by Amartya Sen (Sen, 1999). It generally focuses on development processes intending to understand how

development emerges systemically through choice. The capabilities approach asserts that development entails achieving autonomy across all domains of life. (Kleine, 2010). Other scholars like Alsop & Heinsohn have also operationalized Sen's capability approach, using their empowerment framework in a project for the World Bank (Heinsohn, 2005).

The choice framework by Dorothea Kleine was first used to ascertain the contribution of ICT to Development efforts (ICT4D) through an ethnographic study that focused on micro entrepreneurs' livelihoods in Chile (Kleine, 2007). From the capabilities approach, the choice framework views development as a process rather than an outcome and can be applied to study all paradigms of development processes. The choice framework facilitates a systematic and structured approach to conceptualizing information and communication technology (ICT) in a way that recognizes its widespread and systemic impact. Additionally, it offers a practical way to apply Sen's capabilities approach within ICTs and development. (Kleine, 2010). Ultimately, Kleine's choice framework comprises four dimensions that help map out the systematic development and empowerment process in any field. (Kleine, 2007).

The choice framework provides a conceptual apparatus to categorize and assess comments from my key informants, which will help me to understand how participants arrived at their choice of social media platforms and what hinders them from considering alternatives. The choice framework will also guide me in structuring my interview questions in line with Kleine's four dimensions of choice. The four dimensions of choice include:

1. The existence of choice: draws attention to the participant's level of awareness that different options exist that they can choose from and the ability to achieve them quickly.

2. A sense of choice: ascertains the participant's awareness of all the benefits offered by their choice compared to all the benefits offered by other options.

3. The use of choice: refers to the choice that participants eventually make after achieving awareness of various options and learning about all the offers they present and what participants do with their choice.

4.   Achievement of choice: refers to the participant's appraisal of whether the choice they
      made mirrors the expectations envisaged when making a choice (Kleine, 2010).

2.4 Summary of the Literature

This chapter aims to explore the available literature on Alternative Social Media (ASM) platforms, the Fediverse, with the objective of identifying any research related to its use in sub-Saharan Africa. Additionally, it aims to argue for the need to undertake a rigorous research study to investigate whether any Fediverse instance exists in sub-Saharan Africa, the potential barriers to its adoption and usage in Nigeria, and how these findings can contribute to a better understanding of the factors that affect the use of Fediverse platforms in Nigeria.

This literature review provides insight into alternative media platforms' evolution and network structure, the theoretical approaches that enhance the understanding of platforms and explains possible reasons why people use social media platforms. In addition, this literature review also describes the emergence of ASM with its commendable features and principles. The strength of this literature review lies in the knowledge that platform characteristics, intrinsic needs of users, and factors that promote the use of ASM have been studied extensively in developed regions like Europe, Asia and North America, as is evident in its population of users and increasing interests. However, a gap exists in applying this knowledge in Nigeria, as the awareness of ASM remains low or nonexistent.

My study aims to fill these gaps in the literature by revealing the degree of coverage of ASM in sub-Saharan Africa, providing new information about the level of public knowledge of ASM in Nigeria, and suggesting ways to improve its awareness and use. My study will also examine the obstacles to ASM awareness and use in Nigeria because they provide alternatives for the general public to utilize social media without compromising their privacy and data to exploitation by big multinational technology corporations, thereby providing possible solutions to the identified barriers. By focusing on the benefits that ASM offers, I hope to contribute to the body of research on how awareness of the existence of ASM can be effectively spread in Nigeria. I also aim to explain the barriers that hinder the use of ASM and possible solutions, as ASM platforms are purposefully designed with the public's rights in mind to combat the

economic models of CSM. ASM is an emerging non-commercial network for users who wish to separate themselves from the unethical activities of CSM platforms without isolating themselves completely from using social media. However, this is only possible when people are aware of its existence.

In the next chapter, I will perform a rigorous audit of three Fediverse tracking websites to discover where ASM instances are located and draw up key informants to interview using techniques from Grounded theory and Kleine's choice framework as my theoretical approaches.

CHAPTER 3 - METHODOLOGY

Gehl (2015) describes the Fediverse (a portmanteau of "federation" and "universe") as an ensemble of many unrelated open-source platforms that can interact with one another using a standard protocol called the ActivityPub protocol. To date, the user population of Fediverse platforms is low in the Global North and may be nonexistent in Nigeria. Gehl (2022) highlights this low subscriber population in a recent study by the Pew Research Centre in May 2022, which showed that only about 56% of participants (Americans) who responded to their survey had heard of ASM sites. A review of the literature in the previous chapter also shows a gap in literature relating to ASM in Africa compared to its counterparts in the Global North.

This study sought to identify gaps in the degree of coverage of Fediverse platforms in sub-Saharan Africa and better explain the factors that can promote the awareness and use of Fediverse platforms in Nigeria. Ultimately, the main objective of this research is to gain insight into how these findings can help us to understand better, the factors that influence the use of Fediverse platforms in Africa more generally by providing answers to the following research questions (RQs):

RQ1 - Are there existing active users or active user groups on the Fediverse in sub-Saharan Africa?

RQ2 - What barriers exist to the awareness and use of Alternative Social Media (Fediverse) platforms in Nigeria?

RQ3 - How can these findings help us understand the factors that can generally influence the use of Fediverse platforms in Nigeria?

I used techniques from Grounded theory and Kleine's choice framework for my research design and methodology. As widely discussed in the scholarship, Grounded theory is an approach that focuses on creating new theories from data rather than testing or analyzing evidence in light of pre-existing theories. This theory fits my study well, as it will help me gather and analyze data from the Fediverse tracking websites I plan to audit. Kleine's choice framework will help me understand how participants arrived at their choice of social media platforms and

what prevents them from choosing alternatives by guiding me in probing for the pertinent information from my interviews.

The initial stage of my study's iterative data collection and analysis process was exploring the existing literature in Chapter 2. In this methodology chapter, I will audit the Fediverse as the second stage of my research by triangulating information from three Fediverse tracking websites – to ensure data validity– using Grounded theory techniques to inform and guide data collection and analysis (Heath & Cowley, 2004; Denscombe, 2010). Based on these findings, I will use random and snowball sampling methods to draw up a list of eight key informants to interview for further insight into the awareness and use of ASM. I will use Kleine's choice framework to structure my interview questions in line with its four dimensions of choice and then analyze my findings (Kleine, 2009). Based on my interview findings, I will draw up mini-case studies in the next chapter and conclude with a summary of my findings.

3.1 Research Design

To answer the research questions, I used a qualitative method in a two-part study that began with an audit of three Fediverse tracking websites and was followed by semi-structured virtual interviews that culminated in mini-case studies using techniques from Grounded theory and Kleine's choice framework. My research is focused on identifying the existence of ASM platforms in sub-Saharan Africa (if any), understanding how key informants arrived at their choice of social media platforms, and providing more insight into the barriers to ASM awareness and use in Nigeria. My key informants were organized into two groups and shortlisted using random and snowball sampling methods.

This design and methodology are a good match to answer my research question as techniques from Grounded theory will help me gather data from the Fediverse audit in an inductive iterative manner, thereby providing answers to RQ1 and leading to the shortlisting of the first group of key informants. Kleine's choice framework will help draw up open-ended interview questions and analyze the data to understand how both informants used choice to determine their preferred social media platforms, in line with my research questions. I had considered surveys and other theoretical frameworks like platform studies but rejected them as

these techniques will not provide the in-depth information required for this study. In summary, the Fediverse audit will help to answer my first question on the existence or nonexistence of active users or groups on the Fediverse in sub-Saharan Africa. By exploring existing literature and interviewing key informants, I hope to find answers to my second and third questions, which include discovering some barriers to the awareness and use of ASM (Fediverse) platforms and how these findings can help us understand the factors that can generally influence the use of Fediverse platforms in Nigeria.

Goulding (2002) posits that the researcher's experience is essential for understanding the importance of emergent ideas and categories in a Grounded theory approach, as it provides conceptual leverage to theorize. Using techniques from Grounded theory, I refined my search during the Fediverse audit as I gained new insight during my study (Strauss and Corbin, 1990). Using Kleine's choice framework, I used the findings from the Fediverse audit and literature review to construct open-ended interview questions to gain insight into how key informants arrived at their choice of platforms (Kleine, 2009).

3.2   Participants and Setting

For my setting, I chose three Fediverse tracking websites for the focus of this audit because it houses a collection of platforms or nodes using open-source software that incorporates the ActivityPub protocol. The sources used in carrying out my Fediverse audit are https://fediver.observer, https://federation.info, and https://Fediverse.to. The criteria used to design the audit include websites featuring decentralized social media platforms that use open-source software that can connect and interact with one another through the help of a standard protocol called the ActivityPub protocol. Exclusion criteria include websites with centralized social media platforms that do not use open-source software.

I proceeded to the second part of my research to identify key informants to interview. Also related to "my setting" is that I am comparing key informants with experience of ASM on the one hand and those in Africa without any experience using or running a Fediverse instance

on the other. My key informants were divided into two groups, and their inclusion/exclusion criteria are outlined below.

Group 1: These key informants are made up of English-speaking administrators of Fediverse platforms. Inclusion criteria include English-speaking administrators above 18 years of age that know social media for communications as an administrator of an ASM platform. Exclusion criteria include non-English-speaking administrators below 18 years of age who do not know about running and managing an ASM platform.

Group 2: These key informants are individuals and representatives of not-for-profit and commercial organizations in sub-Saharan Africa who use social media for organizational communications. Inclusion criteria include individuals in Africa above 18 years of age with knowledge of social media for communications in an organizational setting. Exclusion criteria include individuals below 18 years of age who are not in Africa and do not know about social media use for organizational communications.

Recruitment of Group 1 key informants was done by shortlisting mastodon instances with over 10,000 users, and for Group 2 informants, snowball sampling was used. Following the guidelines of the University of Alberta Research and Ethics Office, all key informants received an information letter and consent form (see Appendix A and B), which describes my research and provides information to enable each participant to make a decision and agree to participate in my study willingly (Mack et al., 2011). On anonymity, I explained to participants that I could not promise that no one would be able to find out who they were, based on some of their responses. It is worth noting that no participant signed the consent forms; therefore, I had to record their verbal consent before proceeding with the interview sessions. The semi-structured interviews were done via Zoom video conferencing, which is conducive to the setting because all key informants live outside Canada. All data was stored in my UAlberta Google Drive folder.

3.3 Instruments

My interview approach was qualitative, semi-structured interviews with eight key informants. Using Kleine's choice framework, I structured 13 interview questions for Group 1

(See Appendix C) and 11 for Group 2 (See Appendix D) to be open-ended in the following categories.

1. Awareness of choice: To determine the level of awareness the informant has concerning how/why they chose their current platform(s) and whether other choices were considered or are available to them or their organization,

2. Sense of choice: To determine the level of confidence the informant expresses when choosing other platforms beyond those they are already familiar with,

3. Use of Choice: To ascertain the informant's eventual choice and their confidence level in their choice, and

4. Achievement of Choice: To determine the informant's experience since the informant made their choice and what level of confidence they have in matching the outcome of their choice to its expectations at the outset.

These four categories relate to my research questions (RQs) and the study's intent by highlighting how participants arrived at their choice of social media platforms and what prevents them from exploring open-source alternatives. I used open-ended questions to give participants a chance to give more detailed answers. With open-ended questions, I could also investigate specific themes in line with Kleine's choice framework and participant reactions. According to Galletta (2012), "the key to effective interviewing is the researcher's attention to the participant's narrative as it is unfolding." (p.76). Therefore, by allowing participants to go into greater detail about their experiences and perspectives, semi-structured interviews boosted the content and validity of the findings.

3.4 Procedure

I went online and analyzed the three Fediverse tracking websites selected in detail. I started by identifying the leading decentralized free and open-source software available. After auditing the three Fediverse tracking websites, I took samples of communities with over 100,000 users from the Fediverse.observer website with hopes of selecting participants for my interview. From this sample, only six servers had over 100,000 users, and only two servers had over 50,000

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users. Therefore, I decided to select servers with 10,000 users and above to provide a higher sample size to select from; I counted 37 servers with over 10,000 users. Moving on, I selected every second instance from the 37 servers earlier; therefore, 19 instances were selected, as shown below.

Figure 3.4.1

How I selected every second instance for my sample population, from the table below.

Server	Uptime	Signups	Users	
pawoo.net	99.26%	Yes	761529	1
mastodon.social	99.64%	Yes	756355	2
baraag.net	99.77%	Yes	273666	
mstdn.jp	99.59%	Yes	217985	3
mastodon.cloud	99.54%	Yes	217454	
mastodon.online	99.12%	Yes	102549	4
gc2.jp	99.88%	Yes	99241	
mstdn.social	98.24%	Yes	71917	5
brighteon.social	98.29%	Yes	47837	
staging-do.brighteon.social	100.00%	Yes	47787	6
staging.brighteon.social	99.27%	Yes	46907	
mamot.fr	99.87%	No	38647	7
mastodon.top	99.79%	Yes	30052	
mas.to	95.91%	Yes	29498	8
m.cmx.im	99.75%	Yes	27549	
alive.bar	99.84%	Yes	26992	9
mastodon.technology	99.83%	No	23920	
mastodon.xyz	99.66%	No	23876	10
mastodon.uno	99.91%	Yes	22870	
fosstodon.org	99.88%	Yes	22258	
masthead.social	99.88%	Yes	19913	
wxw.moe	99.42%	Yes	19269	
mastodon.art	99.84%	Yes	18961	
mstdn.io	99.88%	No	18185	
goto.org	99.37%	Yes	17415	
social.tchncs.de	99.81%	Yes	17328	
m.rthome.me	98.78%	No	16404	
abdl.link	99.60%	Yes	15732	
mastodon.bida.im	98.99%	Yes	14990	
mao.mastodonhub.com	97.65%	Yes	14461	

o3o.ca ⓘ	99.57%	Yes	14124
bitcoinhackers.org ⓘ	99.87%	Yes	12755
octodon.social ⓘ	99.86%	No	11897
thu.closed.social ⓘ	99.39%	Yes	11271
mastodon.lol ⓘ	99.56%	Yes	10944
framapiaf.org ⓘ	99.84%	No	10838
kinky.business ⓘ	99.82%	Yes	10388
love.alicecomplex.com ⓘ	99.85%	No	9904
eldritch.cafe ⓘ	99.81%	Yes	8887
chaos.social ⓘ	99.77%	No	8698

Source: Screenshot from www.fediverse.observer

From the list of Mastodon instances with a user base of 10,000 and above that I had shortlisted earlier, I selected about 19 Fediverse instances to contact for interviews with the instance administrator for group 1. I selected this number even though I only planned to interview about three or four instances because I anticipated that not all would indicate their interest in participating in my research.

Challenge: A significant challenge I faced was that, as anticipated, not everyone responded to my initial email. Only one administrator responded to me upon contacting the 19 ASM administrators. I had to persistently resend the email twice a week to get the additional four administrators I eventually interviewed to respond to my email. Another challenge was that no participant signed my consent form; I had to get their verbal consent recorded before commencing the interview. No changes were made to the instrument.

For the key informants for group 2, I used the snowball sampling method to reach out to six communication practitioners in sub-Saharan Africa, and only four responded to me. In total, I interviewed eight participants; four of them were administrators of Mastodon instances with a vibrant community of over 10,000 subscribers, while the other four were communication practitioners in Nigeria who use social media for organizational communications.

I chose these categories of informants because I expect Mastodon administrators to provide information on the pros and cons of running an ASM platform (their ASM experience) and, from their experience, provide insight into the barriers to adopting ASM (RQ2). In contrast,

my African counterparts will provide comparative information on why they chose their current social media platforms for organizational communications and provide insight into the factors that can generally influence the use of Fediverse platforms in Africa (RQ3). They will also learn about the existence of ASM platforms and how they can integrate them into their organizations should they adopt them.

Before conducting the interviews, I sought approval from the University of Alberta's Research Information Services (ARISE). The approval process involved submitting a comprehensive human research ethics application to the university's Research Ethics Board (REB). After completing my interview questions and getting approval from Ethics, I contacted prospective key informants via my UAlberta email address. The semi-structured interviews took place over the Zoom video conferencing platform as all key informants were located outside Canada (USA, Netherlands, United Kingdom, Ghana and Nigeria); the Zoom platform also enabled recording the session for easy transcription and analysis. All interviews were recorded with the participant's permission, and policy and processes for discarding the recorded conversation were disclosed.

3.5 Analysis

Using techniques from Grounded theory and an inductive approach to finding answers to my research questions, I performed a two-part study. My two-part study began with auditing and triangulating the information from three Fediverse tracking websites: https://fediver.observer, https://federation.info, and https://Fediverse.to to ensure the confirmability and trustworthiness (that is, validity and reliability) of qualitative data collected and my overall results (Golafshani, 2015). Strauss & Corbin (1990) define *Grounded theory* as "The theory that was derived from data, systematically gathered and analyzed through the research process." (p.12). The audit was carried out to identify locations of Fediverse instances, and it is expected to confirm if any instance(s) is located in Africa. The audit also identified Fediverse instances from which key informants were selected for interviews.

The second part of the study was a comparative set of key informant interviews, with one group of key informants with experience in ASM and a counterpart group in Africa made of key

informants from similar organizations that are candidates for using Fediverse platforms. After the interviews, I transcribed the recorded conversation with some help from Descript software — I had to proofread it again and error-correct the initial transcript— and I coded the recorded conversations into four groups per Kleine's choice framework to identify patterns and emergent codes using qualitative content analysis (See Appendix E). Because I used a small sample size, I employed manual coding using Excel spreadsheets rather than a software tool to be as close to the data as possible (Mayan, 2009); this allowed me to elicit the experience of data collecting more readily (Fielding, Lee, & Lee, 1998). The transcription of the interviews enabled more early precoding (Mayan, 2009; Saldaña, 2015), identifying terms or brief sentences that indicated the substance of the material. As Saldaña, 2015 suggests, I utilized columns for transcripts: one for raw data and one for notes taken during the coding process. As I analyzed and coded the transcribed data from the interviews, potential insights emerged, which provided some answers to my research questions using Strauss and Corbin's (1990) method for data analysis under the Grounded theory (Heath & Cowley, 2004).

My analytical procedure will address issues of reliability and validity with my findings because the triangulation of sources from the three websites and interviews of two groups of key informants will help to ensure that the data collected are accurate, comparable and reliable across all websites, codes and themes from participant interviews (Strauss & Corbin, 1990; Mayan, 2009).

Limitations: The small sample size of key informants and difficulty in reaching a larger sample of potential participants without travelling to the country may have been limitations.

3.6 Summary

This research used techniques from Grounded theory and Kleine's choice framework as its research methodology for data collection, including conducting eight semi-structured interviews via the Zoom video conferencing platform to determine if ASM platforms exist in sub-Saharan Africa, gain insight into the barriers to awareness and use of ASM in Nigeria, and how these findings can help us understand the factors that generally influence the use of Fediverse platforms in Nigeria. Interviews were conducted with administrators of Fediverse

platforms in the USA, UK and the Netherlands on the one hand (group 1) and individuals in Nigeria and Ghana who use social media for organizational communications (group 2). I used qualitative content analysis to analyze the transcribed data from the interviews to ascertain the emergent codes and themes in line with Kleine's choice framework.

In the next chapter, I will discuss the research findings from the analysis and results of the Fediverse tracking website audits and excerpts of the interviews with key informants. I will also summarize initial insights as they relate to the research questions.

CHAPTER 4 - FINDINGS AND DISCUSSIONS

The Fediverse (ASM) refers to federated social networks that run on free, open-source software on different servers worldwide (Al-khateeb, 2022). These platforms boast of providing privacy and protection to subscribers but are known more widely in the Global North than in the Global South. This study explores the awareness and use of ASM, specifically the Fediverse in the Global South, focusing on Nigeria.

Using techniques from Grounded theory and Kleine's choice framework, I embarked on a two-part study to explore and find possible answers to the following research questions (RQs):

RQ1 - Are there existing active users or active user groups on the Fediverse in sub-Saharan Africa?

RQ2 - What barriers exist to the awareness and use of Alternative Social Media (Fediverse) platforms in Nigeria?

RQ3 - How can these findings help us understand the factors that can generally influence the use of Fediverse platforms in Nigeria?

To determine whether ASM (Fediverse) platforms exist in sub-Saharan Africa, particularly in Nigeria, I first conducted an extensive literature review of social media platforms. Specifically, I searched for any existing literature on ASM in Africa. Next, I audited three Fediverse tracking websites to explore the distribution of Fediverse instances worldwide, focusing on sub-Saharan Africa. Lastly, I shortlisted four ASM platform administrators to interview using random sampling and another four informative interviews with communication practitioners in sub-Saharan Africa using the snowball sampling method. This technique helped me to understand how key informants arrived at their choice of social media platforms and gathered data on the barriers that hinder the awareness and use of ASM platforms. I used Kleine's choice framework to structure my open-ended interview questions. Then I conducted semi-structured interviews with eight key informants via the Zoom video conferencing platform to align with Kleine's four dimensions of existence, sense, use, and achievement of choice (Kleine, 2009). Using qualitative content analysis, I transcribed the recorded sessions. I coded

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them in line with Kleine's choice framework to gain insight into how participants arrived at their choice of ASM platforms, how they are run, and the barriers to the awareness and use of ASM (Fediverse) platforms, especially in Nigeria.

In this chapter, I will analyze the results of my Fediverse audit, describe the excerpts of my interviews with key informants in mini-case study formats, and outline my findings by comparing the responses from the interviews with the administrators of Fediverse platforms on the one hand and communication practitioners in sub-Saharan Africa on the other, and finally, conclude with a summary of my findings.

4.1 Data Presentation

As part of the Grounded theory technique, Lofland et al. (2006) suggest anxiety-reducing strategies like "getting started on analysis early in the data-collection phase of your project." (pp. 198-200). Ongoing data analysis helps to inform later stages of the research by directing attention to emerging areas of interest. Following this tip, I analyzed the data as I collected it during my data collection phase.

During the initial stage of research, I conducted an audit of reported Fediverse instances, using information compared from three sources as described in the previous chapter. I started by identifying the leading decentralized free and open-source software available:

1. Mastodon: Mastodon is for microblogging, similar to Twitter. Unlike Twitter, which only allows 200 words per tweet, Mastodon allows 500 words per toot.
2. Peertube: Peertube is for video broadcasting, similar to YouTube.
3. Pleroma: Pleroma is another microblogging platform similar to Twitter and Mastodon, with a character limit of 5000 words.
4. Friendica: Friendica integrates social communications, similar to Facebook.
5. Pixelfed: Pixelfed is a photo-sharing platform similar to Instagram.
6. Diaspora: Diaspora is similar to Facebook and LinkedIn.

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Next, I looked at the growth of the user population and activity of Fediverse platforms as illustrated below.

Figure 4.1.1

Growth in the Population of ASM Users between 2019 and 2022
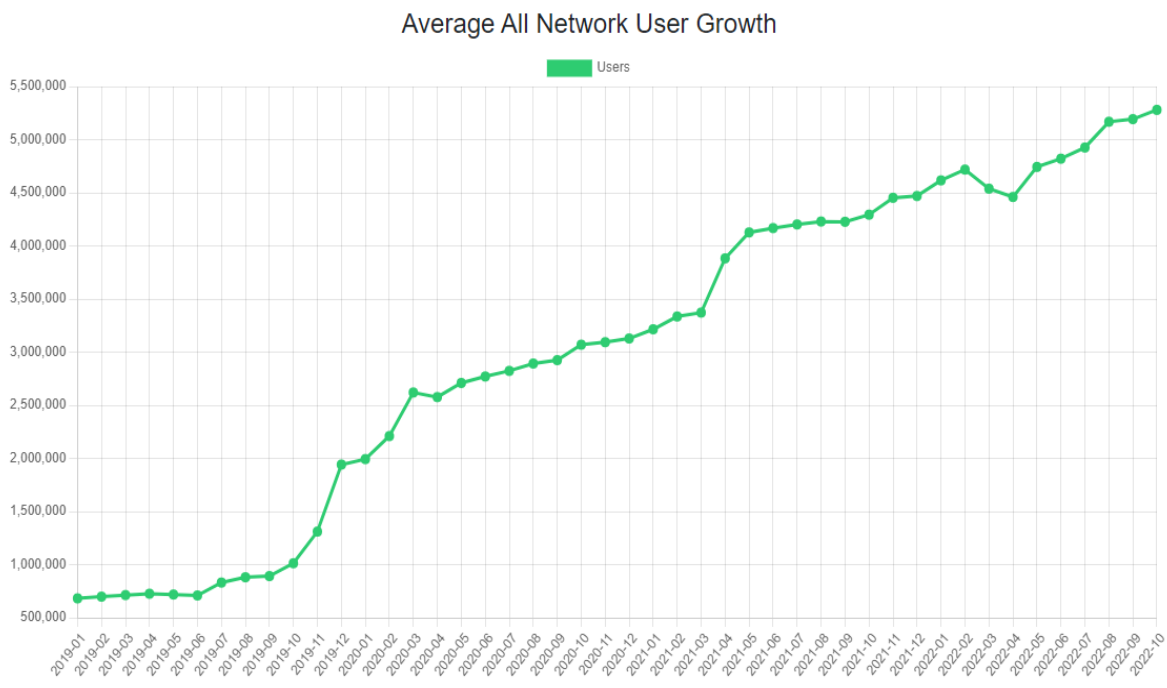
Source: Screenshot from www.fediverse.observer

The diagram above shows steady growth in the total population of ASM users for all Fediverse platforms, from a little over 500,000 users in January 2019 to over 5,000,000 users in October 2022. This data represents a 1000% increase in the user population of ASM in the Global North.

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Figure 4.1.2

Growth in User Activity Per Month between 2019 and 2022
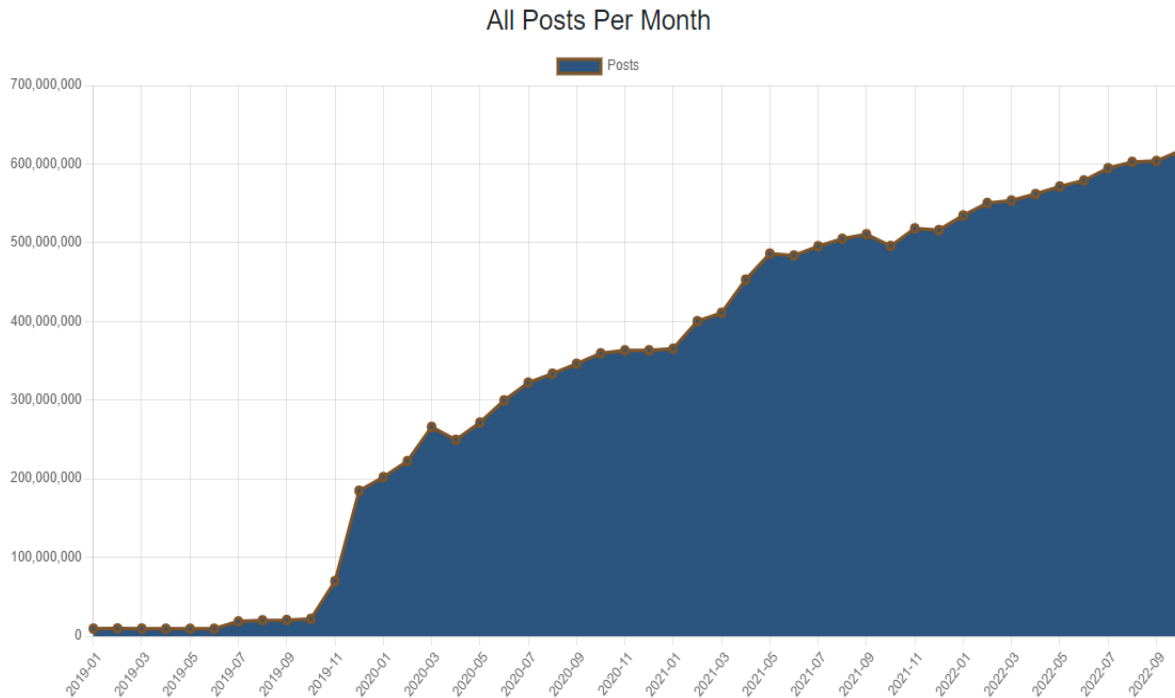
Source: Screenshot from www.fediverse.observer

All posts and comments on Fediverse platforms have also enjoyed a steady increase in online engagement per month (Fig. 4.1.2), from 10,000 posts per month in January 2019 to over 600,000,000 in September 2022. These diagrams show that Fediverse platforms are gradually gaining popularity in the Global South.

I checked the Federation.info website and identified several nodes in various countries around the continent where Fediverse servers are situated. I investigated further to categorize the top four software being adopted by users, the number of servers or instances owned by the top three Fediverse platforms, and the top four countries with the highest number of servers. Diagrams are illustrated below.

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Figure 4.1.3

Platform Statistics of the Entire Fediverse
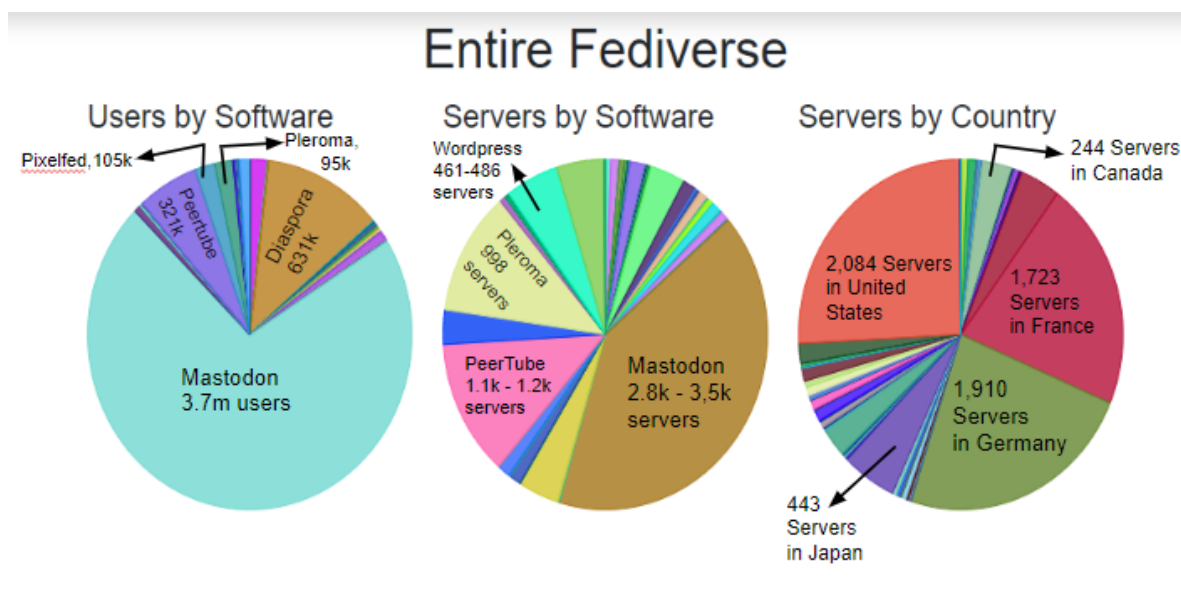
Source: Screenshot from www.Fediverse.observer/stats

From the Fediverse audit, about 35 different Fediverse platforms are available. Platforms with the highest number of subscribers are Mastodon, Peertube, Pleroma, and Diaspora (To the Fediverse!, n.d.). Mastodon emerged as the most used platform with an estimated 3.7m users, followed by Diaspora with about 631,000, while PeerTube emerged with about 321,000 users. According to the chart above, Mastodon also leads with the highest number of currently used servers, with estimates ranging from 2,800 to 3,500. PeerTube followed with about 1,100 to 1,200 servers; in third place was Pleroma, with 998 servers.

Analyzing the countries with the highest number of servers, the United States took the lead with 2,084 servers, followed closely by Germany with 1,910 servers. In third place was France, with 1,723 servers. In interpreting the results of this data, the US has more servers with fewer users than Germany. In comparison, Germany has fewer servers with more users than the US, which suggests that Germany has more subscribers and active users on its Fediverse platforms than the US. Fediverse platforms like Mastodon and Diaspora currently have a user population of 5.4 million subscribers, and out of these, only about 1.6 million people are active users. The user population of Fediverse platforms is much lower than that of CSM platforms like

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Facebook and YouTube, which boast an active user base of over 4.6 billion people, according to the 2022 Global Overview report by Datareportal.

I presented data from the www.federation.info website, illustrating the distribution of Mastodon instances around the continents.

Figure 4.1.4

Distribution of Countries where Mastodon Instances are Located

Source: Data from https://the-federation.info/info
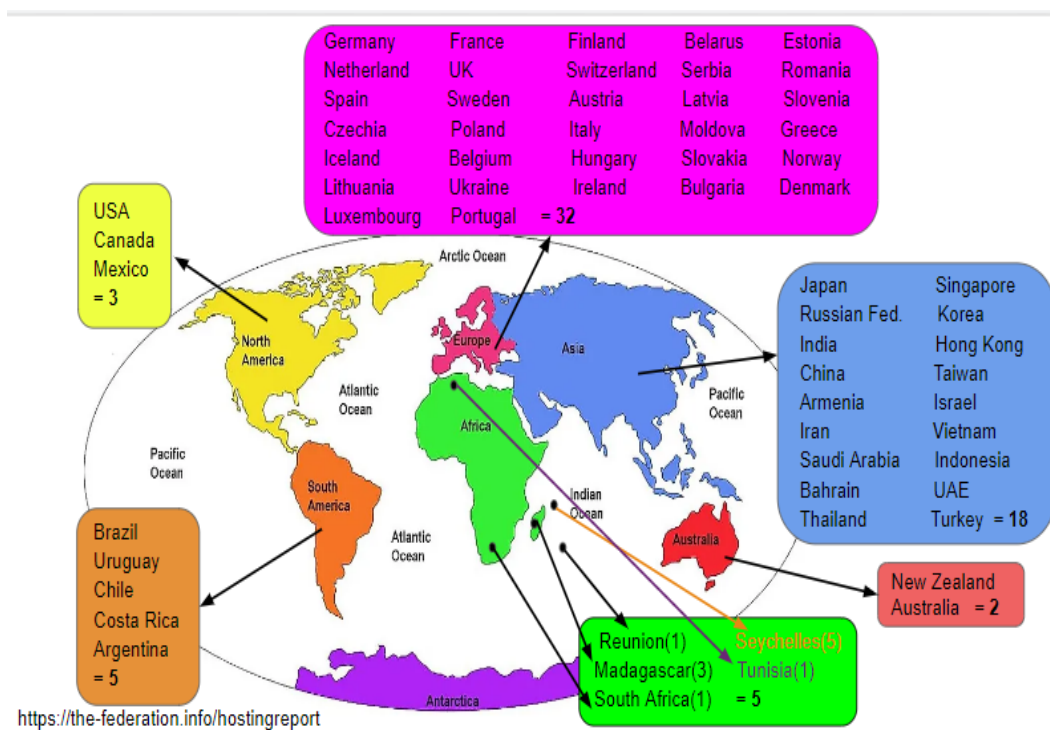
The information above suggests that the European continent currently has the most countries where Fediverse instances are found (32 countries). Following closely is the Asian continent, with 18 countries. South America and Africa have instances in 5 countries each, but 3 out of 5 countries from Africa are from small islands off the continent's shore. North America has instances in 3 countries, while the Australian continent is the least with instances in 2 countries only.

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Figure 4.1.5

Screenshot Showing the Distribution of Instances Worldwide
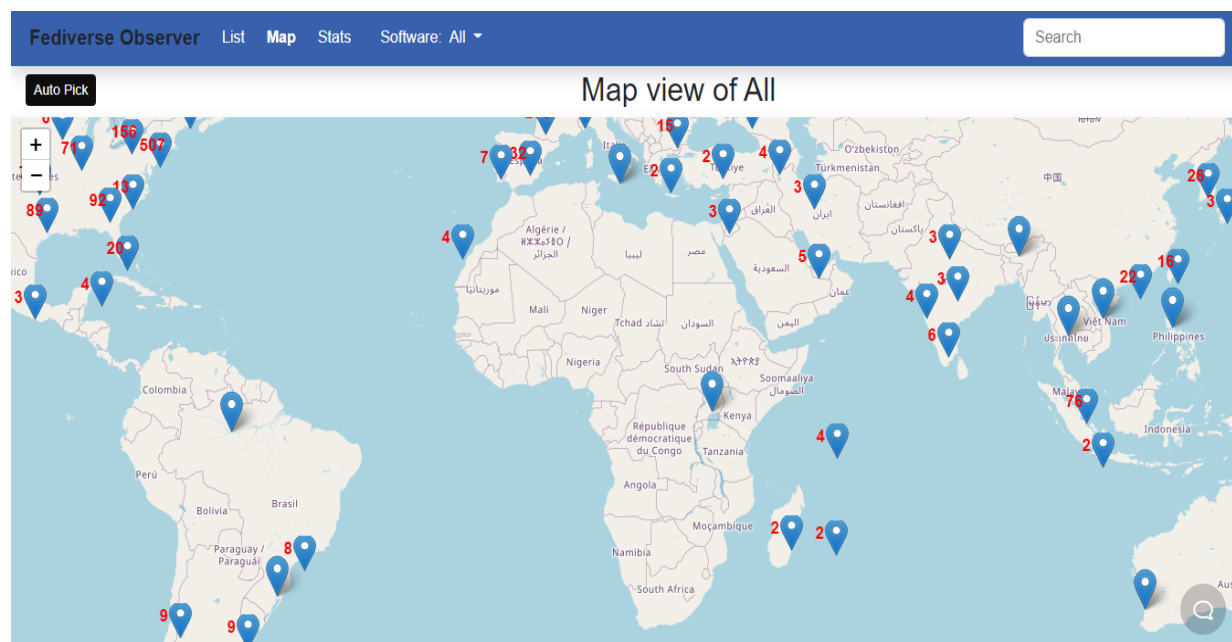
Source: www.fediverse.observer

I narrowed in on the global search and found that there appears to be one Fediverse instance in Uganda, as illustrated below:

Figure 4.1.6

Screenshot Showing One Instance with No Signups found in Uganda
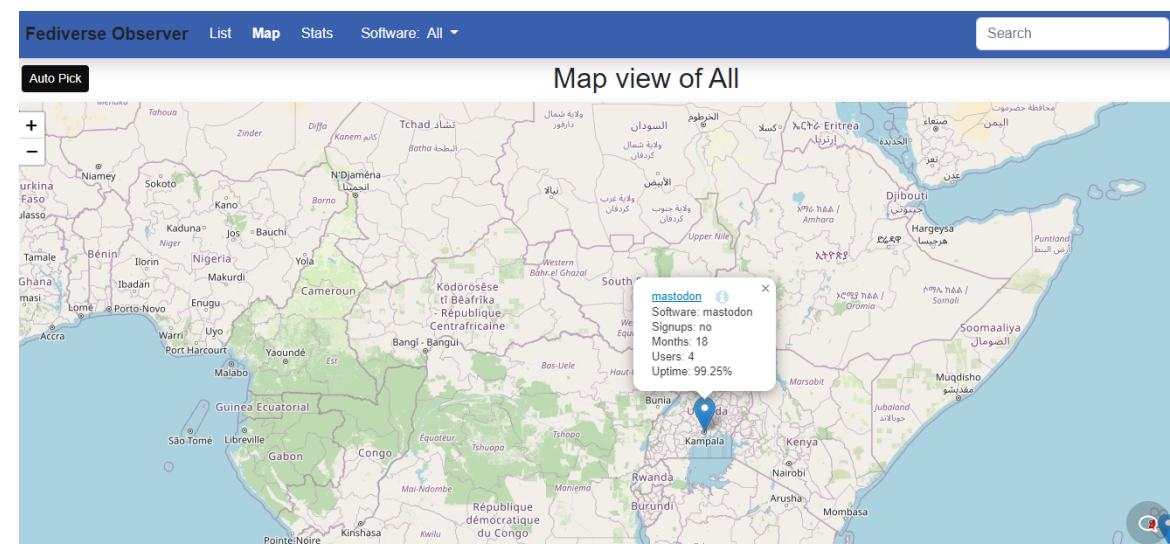
Source: www.fediverse.observer

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Data from www.fediverse.observer suggests that only one Fediverse platform exists in Africa (Fig. 4.1.6). In Uganda, this Fediverse tracking website suggests that one Mastodon instance exists. The screenshot of the Mastodon instance on the map above suggests that the instance only has four primary users. Still, there have yet to be any signups to date. All attempts to reach the server administrator for an interview were futile.

To ensure the validity and reliability of my research data, I triangulated the data from three Fediverse tracking websites – www.fediverse.observer, www.the-federation.info and www.fediverse.to. I made a basic comparison of the countries with the highest number of users, platforms with the highest number of users, and the platforms with the most servers or instances; I organized them in a table format to determine their average scores. Triangulation is a method (test) used to improve the validity and reliability of investigations or to evaluate findings (Golafshani, 2015). I used this method to compare results from three Fediverse tracking websites, as shown below, to determine the accuracy and reliability of the results from the Fediverse audit.

Table 4.1.7

Results from The Audit of Three Fediverse Tracking Websites

	www.fediverse.observer	www.the-federation.info	www.fediverse.to	Average Score
Total user population	5,270,439	6,157,949	3,819,880	5,082,756
Total number of active users	N/A	1,523,954	1,627,051	1,575,503
Total number of servers	12,513	11,312	7,565	10,463
Platform with the most servers	Mastodon 3,526	Mastodon 3,999	Mastodon 3,533	Mastodon 3,686
Platform with the highest	Mastodon 3,793,221	Mastodon 4,495,387	Mastodon 1,974,000	Mastodon 3,420,869

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number of users				
Country with the highest number of users	Germany 760,848	Germany 2,029,952	N/A	Germany 1,395,400

Note. The counts in the table above do not necessarily reflect the total number of active instances due to the opt-in nature of the aggregator websites.

The results above suggest that the average number of users on Fediverse platforms is 5,082,756 subscribers. From this number, only about 1,575,503 subscribers are active users, meaning that most users subscribe but rarely post content, comment, or contribute to other discussions. The average total number of servers or instances around the globe remains at 10,463, with Mastodon taking the lead as the platform with the most servers and the highest number of users (3,686 servers and 3,420,869 subscribers), respectively. Germany has the highest number of subscribers to Fediverse instances, with 1,395,400 average users. According to the result above, I decided to focus on the Mastodon platform for my data collection and analysis.

Based on the samples from the three Fediverse tracking websites audited, Mastodon remains the most used Fediverse platform, with the most subscribers and the most substantial evidence of ongoing activity on the site. Most instances of Mastodon are used for general discussions ranging from politics, general news, technology, and essential communications in specific languages by Chinese, Italian, and French communities. Also, a fraction focuses mainly on LGBTQ+ communities, uncensored news, and technology. After filtering the search result to select Mastodon servers with over 10,000 users, 37 servers or instances emerged.

From the 37 Mastodon instances with over 10,000 users earlier identified by filtering search results from the Fediverse.observer website, I selected every second instance from the list of 37 instances; therefore, 19 Mastodon instances were selected. I chose the 19 Mastodon instances because of the size of their communities (10,000 and above). I analyzed them by visiting their instances, browsing through their trending posts to understand their purpose and noting their contact details so I could reach out to their administrators for possible interviews.

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From the analysis above, I have completed an exploratory audit of Fediverse instances globally and confirm that there is no significant presence of Fediverse platforms in sub-Saharan Africa. There exists a clear gap in coverage of Fediverse platforms between the Global North and South. It also proves that Fediverse platforms are nonexistent in Nigeria.

After studying existing literature and auditing the Fediverse tracking websites, I formulated my open-ended interview questions. I categorized them into four significant groups using Kleine's choice framework to enable me to conduct semi-structured interviews with key informants as the second part of my research study. The audit was also used to identify administrators of Fediverse instances I could interview as key informants experienced in ASM administration. This set of interviews provided a baseline by which to perform the second set of interviews with key informants from Africa. For Group 1, I interviewed four administrators of various Mastodon instances and for Group 2, four communication practitioners in sub-Saharan Africa. Using qualitative content analysis, I launched the coding process on the excerpts of my interviews. The analysis of participants' responses from Group 1 is outlined below.

Group 1 - Experienced administrators

Key Informant: Fosstodon

Fosstodon is a Mastodon instance focusing on free and open software technology. Established in August 2017, its server is hosted in France while its administrator lives in the USA; when writing this research thesis, it has 47,000 users. Fosstodon is a closed instance with new users subject to approval by the instance administrators. The site has a code of conduct policy, server rules for all subscribers to adhere to, and a list of moderated servers with which the Fosstodon instance has limited interaction. The site also has a link to a hub that acts like a mini-site in the form of a blog and a call for support that provides options for people to donate to the instance' cause.

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Figure 4.1.8

Screenshot of the Fosstodon Instance Showing Link to Code of Conduct and Hub
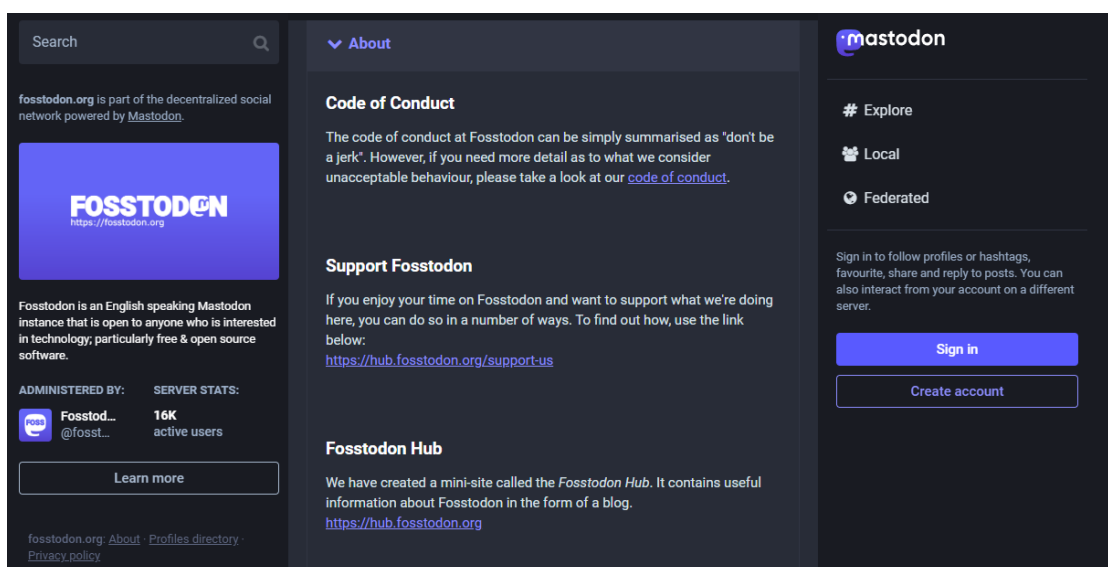
Source: https://fosstodon.org/explore

Key Informant: Infosec.exchange

Infosec.exchange is a Mastodon instance focusing on information and cyber security. Established in early 2017, Infosec.exchange server is hosted in Germany while its administrator lives in the USA. When writing this research thesis, the Infosec.exchange instance has 31,000 users. The instance is open to new subscribers; administrators require no approval. The site has server rules and a list of moderated servers with which the Infosec.exchange instance has limited to no interactions. It also has a link to donate to the instance' cause.

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Figure 4.1.9

Screenshot of the Infosec.exchange Instance Showing List of Moderated Servers

Source: https://infosec.exchange/about
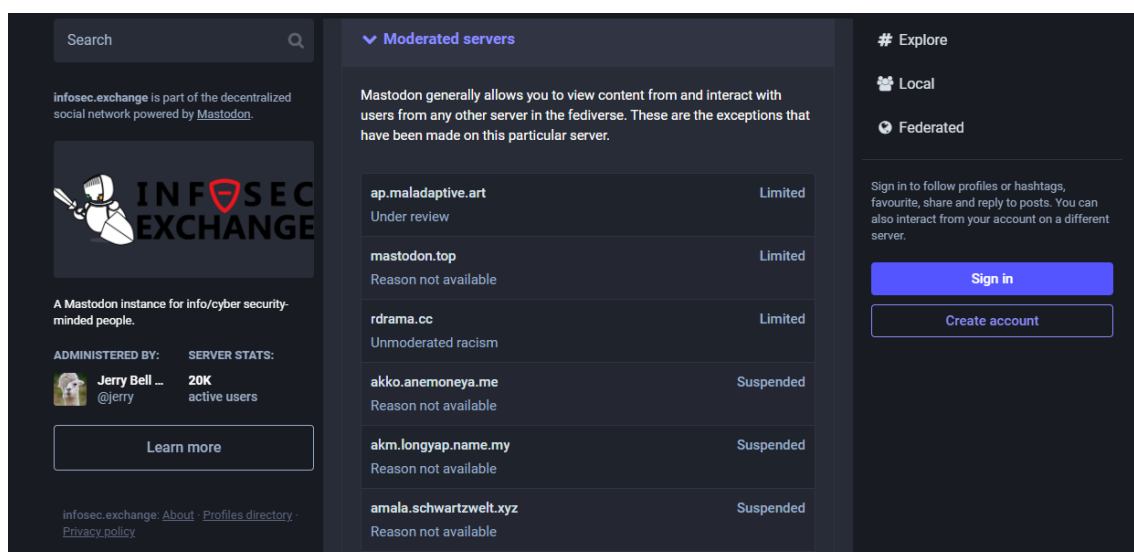
Key Informant: Mastodon.world

Mastodon.world is a generic instance that welcomes all users, regardless of language or interests. Users can discuss anything, provided that they follow the stipulated rules. When writing this research thesis, the Mastodon.world instance has 120,000 users. Mastodon.world's server is hosted in Finland, while the instance administrator lives in the Netherlands. The instance is open to new subscribers; no approval by the instance administrators is required. The site has server rules and a list of moderated servers with which the Mastodon.world server has limited to no interactions. The site also has a link calling for donations and provides a breakdown of costs incurred monthly on instance maintenance.

Figure 4.1.10

Screenshot of the Mastodon.world Instance Breakdown of Monthly Running Costs

Source: https://mastodon.world/about

Key Informant: Masthead.social

Masthead.social is an instance for up-to-date news and entertainment. The instance welcomes journalists, media makers like bloggers, vloggers, podcasters, and anyone wanting to "spread the truth and have a conversation" (Masthead.social administrator). The instance currently has about 28,000 users when writing this thesis. The instance's server is hosted and maintained personally by Masthead.social's administrator in the United Kingdom.

In line with Kleine's choice framework, I will briefly explain the responses of group 1 key informants and key takeaways.

Theme A: Awareness of Choice (what level of awareness does the informant have concerning how/why they chose their current platform(s) and whether other choices were considered or are available to them or their organization).

Fosstodon's administrator was formerly a subscriber of Google Plus and Tweetdeck. He and his friends decided to host their Mastodon instance when Google Plus went defunct, citing their reason as "it will be our little vanity URL" (Fosstodon administrator). Fosstodon's

administrator and friends considered other platforms like Friendica and Pleroma. However, they settled for Mastodon because its user interface was similar to what they were already used to, using the Tweet deck.

The Infosec.exchange administrator could not recall how Mastodon came to his attention but explained that "the whole federated architecture remains to this day, pretty fascinating to me" (Infosec.exchange administrator). When asked if other choices were considered, he responded, "I have been contemplating setting up what I will call adjacent platforms that use the same kind of federated architecture, like Pixelfed" (Infosec.exchange administrator).

Mastodon.world's administrator is an IT professional who likes "researching and exploring new technology" (Mastodon.world administrator). He stumbled upon Mastodon during one of his research. However, he added, "I still use things like Facebook because other people use it; I need to follow them, so I cannot convince everyone to leave Facebook" (Mastodon.world administrator).

Masthead.social's administrator said that he learnt about Mastodon from his friend, "it was quite funny 'cause it was not mine, to begin with, but I like it because it had that Twitter touch to it...I reached out to my friend on LinkedIn, and he said, well, I will tell you what, you can have mine. Within 20 minutes, the domain had been transferred to me. I was so excited like I just won the lottery because it was an instance already made, and the mindset was the same and still is the same" (Masthead. social administrator).

Theme B: Sense of Choice (what level of confidence does the informant express when it comes to being able to choose other platforms beyond those they are already familiar with?). All key informants were highly confident in choosing other platforms beyond those they already knew.

Fosstodon's administrator reported, "The instance thing just made sense to me. It is like the Twitter version, like Twitter and email got together, and that is it. Everybody tries to explain it, and it gets complicated" (Fosstodon administrator). However, he added that should they

consider another, it would be more complementary and not a substitute; he cited Pixelfed as a possible supplement.

The Infosec.exchange administrator had considered other platforms like Funkwhale, PeerTube and Pixelfed. He added that choosing other platforms beyond those he is familiar with "would be on two dimensions. One, was anybody interested in using it? And then, how does the tech stack look? For example, if it runs on Windows, it will probably not be something I would go after because I am not comfortable hosting that. So, I would say it is a small amount of the technology aligned with what I am comfortable with" (Infosec.exchange administrator).

Mastodon.world's administrator stated, "I use other open-source platforms like Pixelfed and Peertube, but I use Mastodon most. I installed Pixelfed for myself but opened it up for registration so people could join. I think there are only a few dozen people there at the moment. Mastodon grew very quickly" (Mastodon.world administrator). He added that in choosing other platforms beyond those he is familiar with, "first, you need to decide the size you want it to be. Do you want to set up an instance just for you or open it up for others? If so, do you want to keep it for a small community? Alternatively, grow it bigger like my server now is. You need a virtual computer or a computer at home" (Mastodon.world administrator).

Masthead.social's administrator stated, "I like Facebook's features...That is one of the reasons I started developing additional platforms. If you return to me in three weeks, we may have something equally nice and engaging but with all that functionality built into it and ready to go. The platform will have functionalities that will not be free; they will not be expensive either" (Masthead.social administrator). Some of the features that he plans to integrate into his proposed ASM platform include "live streaming, a marketplace for buying and selling, group features and 2-factor authentication" (Masthead.social administrator).

Theme C: Use of Choice (what choice did the informant eventually make, and what level of confidence does the informant have in their choice?). All key informants in Group 1 chose the Mastodon Platform. Three out of the four administrators outsourced their instances.

Fosstodon's administrator explained that outsourcing their instance "lets us focus more on the community. We are dealing with the accounts, moderation, and being present in the timeline; having an instance out there is one thing. Still, it is another thing to let people know that you use it" (Fosstodon administrator). He added that "there are six times more people using our server than were using it before," and as such, "our moderation staff has been taking shifts. I mean, these people are volunteers, where none of us get paid" (Fosstodon administrator).

The Infosec.exchange administrator chose the Mastodon platform because he is "fascinated with the federated nature of ASM platforms," and setting up the instance was pretty simple." (Infosec.exchange administrator). Recently, the instance increased in its user population due to Elon Musk's acquisition of Twitter, Infosec.exchange administrator reported that "We went from 180 to 31,000. So there were a couple of challenges. One was scale, I had to go from one server to nine servers, and then the other challenge was moderation. I had to assemble a 24-by-7 volunteer moderation team in Australia, Europe and USA" (Infosec.exchange administrator).

Mastodon.world's administrator explained that "setting up the instance was straightforward" in the beginning; according to him, "in the last four weeks, 120,000 people joined our instance" (Mastodon.world administrator). This influx of new subscribers was in the wake of Twitter's takeover by Elon Musk, adding that "The hardest part was when it started growing...keeping up with the growth and buying a bigger server; we have two servers now, and the biggest issue with running a server is moderation. I now have eight volunteers moderating in different time zones and languages from Lithuania, UK, Egypt, USA, and Bangladesh" (Mastodon.world administrator).

Masthead.social's administrator also confirmed that his instance had grown in the last month, stating, "We have gone from 2000 users to 29,000 users. Two administrators and 20 moderators from Poland, the UK, America, and Canada manage the instance to cater to the growth. Moderation, deploying servers and scaling up is not as easy as you think" (Masthead.social administrator).

Theme D: Achievement of Choice (What has been the experience since the informant made their choice, and what level of confidence does the informant have in matching the outcome of their choice to its expectations at the outset?). All key informants showed significant confidence in matching outcomes to expectations.

Fosstodon's administrator reported, "I am super proud of it. It has worked out well. It is one of those things that you just kind of feel like if I did even the slightest thing differently, It would all fall" (Fosstodon administrator). Some challenges identified by the respondent are "discoverability, moderation of the instance—they are all volunteers, and they have been taking shifts to get the accounts approved—access to funds, and if you join, none of your friends are there (network effect)" (Fosstodon administrator).

The Infosec.exchange administrator reported that their "user growth, acquiring additional servers to support the massive influx of new users to the instance, better handling of moderation issues, quickly having to assemble volunteers to monitor and respond to requests and reports of harassment and improper conduct" (Infosec.exchange administrator), have been beneficial to the overall development of the instance. One area of change that the respondent expressed that he would like to correct is "the look and feel" that is, the user interface. Challenges with running the instance include "lack of awareness, moderation challenges, usability, and access to funding." (Infosec.exchange administrator).

Mastodon.world administrator, explained, "I did not expect this to be this big. I just wanted a few users, so my expectations were blown away. Now the question is, do I need to grow more or stop?" He added, "The idea is that instances are federated. There should be several, multiple servers rather than a few big servers, but the problem is that 99.9% of the people do not want to run it. They want to use it without considering where it is or how to run it. I think companies and famous people need to set up their servers, just like email" (Mastodon.world administrator). Another interesting point made by this respondent was the need for succession planning — the continuity of instances even in the absence of administrators who created it — stating, "...I do not want the server to go down. Suppose I get hit by a bus tomorrow. In that case, there should be people taking over." Challenges with the Fediverse include "Lack of funds to run

the instance and pay volunteers, lack of succession planning, possible lack of infrastructure in the Global South" (Mastodon.world administrator).

Masthead.social's administrator admitted that their biggest daily challenge is "moderation," especially with the influx of new users daily. Another significant challenge has been "deploying servers and increasing their servers' capacity to accommodate new users" (Masthead.social administrator). Barriers to using Fediverse platforms include "its functionality of evolving; it has not changed, everyone wants to do live streaming. It does not have and will never have that because of how it is set up. It does not have a marketplace; I like going onto Facebook and buying things locally. It does not allow you to have a donation button if you have a worthy cause like fundraising for an organization; it does not allow you to advertise and make revenue out of things like that. It does not have the functions to do that; it has not changed" (Masthead.social administrator).

Key findings from the data analyzed from group 1 interviews include.

- Most Mastodon servers are outsourced to hosting organizations away from where their administrators reside; of the four Mastodon administrators interviewed, only one server was hosted personally.

- All key informants in this group agreed that they knew other social media platforms before choosing the Mastodon Instance. They also confirmed that they are open to using other Fediverse platforms, and setting up their instance was easy due to available open-source codes. When writing this thesis, all four instances had witnessed an increase in new subscribers due to Twitter's takeover by Elon Musk. Common challenges include moderation and adequate funds to compensate volunteers and cater to server expansions. Responses of key informants in group 1 did not differ much, except that some instances had more funds from crowdfunding than others.

- One of the Mastodon administrators plans to launch his own paid-for ASM platform that promises to have features similar to Facebook.

In placing these findings within Kleine's choice framework, it becomes evident that administrators who explore options for hosting their servers and consider essential features for their ASM instance exhibit an understanding of choice. When administrators are aware of alternative hosting options and features that could enhance adoption, they possess a sense of choice. They then evaluate their choices based on potential outcomes, leading to the use of choice when they outsource their servers and select the key features of their ASM instance based on their values and objectives. The attainment of choice occurs when administrators reflect on their decisions and assess the resulting outcomes.

For organizations in sub-Saharan Africa or Nigeria that might want to adopt ASM, these findings suggest that they can create accounts on any Fediverse platform, but it may not be evident from their profile that they are located in these regions. However, they have the option to establish their own Fediverse instance on any platform and host it locally, which could lead to more instances appearing in sub-Saharan Africa as other organizations try to emulate their success. Organizations in Nigeria can leverage Fediverse platforms to build non-commercial online communities where colleagues, partners, and acquaintances can exchange information, news, and other valuable content.

After interviewing key informants from Group 1 and analyzing the data from the first set of interviews, I conducted a second phase of semi-structured interviews with Grou p 2 key informants of not-for-profit organizations in sub-Saharan Africa and communication practitioners in Nigerian commercial organizations. The analysis and excerpts of the interviews are outlined below.

Group 2 - Organizations in sub-Saharan Africa

For group 2, I contacted not-for-profit organizations in sub-Saharan Africa and communication practitioners in Nigerian commercial organizations. These sub-groups were selected from snowball sampling because of the need for rich insight into the choice of social media platforms in profit-making organizations and vice versa hence, the two sub-groups of key informants. For this research and to maintain anonymity, I will refer to these organizations as

Canadian NGO, African NGO and Nigerian company (The answers from the second Nigerian company were similar to the first, so I merged them into one).

Brief Overview of Business Types

Canadian NGO was founded in 1979 and used radio to disseminate tailor-made information to its target audience, farmers in sub-Saharan Africa. Canadian NGO aims to make radio a powerful medium to serve farmers in sub-Saharan Africa by sharing knowledge and giving them a voice.

African NGO is a Pan-African non-governmental institution established in 1988 to promote women's development in Africa and amplify their voices across the continent and beyond, using various platforms including but not limited to social media and physical forums. African NGO help non-governmental organizations share information and approaches to women's development, equality and other human rights.

Nigerian company is an Information and Communication Technology company based in Lagos, Nigeria, established in 2010. They provide innovative technology solutions to all business sectors in sub-Saharan Africa.

In line with Kleine's choice framework, I will briefly explain the responses of Group 2 key informants and key takeaways.

Theme A: Awareness of Choice (what level of awareness does the informant have concerning how/why they chose their current platform(s) and whether other choices were considered or are available to them or their organization)

The Canadian NGOs Representative reported that they were aware of mainstream social media platforms like Facebook and Twitter, which they use to communicate with their audience. They chose these platforms because "these are platforms with a large audience. So for you to reach a large number of people, you need a medium that can help you to reach them" (Canadian NGO). The organization was not aware of ASM platforms. The representative added, "if you look at it, these are platforms that you have many organizations connected to. Therefore, it is prudent for you to connect on the same medium" (Canadian NGO).

African NGOs representative reported that they mostly use mainstream social media platforms like Twitter, Facebook, Instagram, and Linkedin. These platforms were chosen according to the representative because "In Africa, tweeting is like second to the news. You could cascade critical information via Twitter, and it is taken very seriously; most of our target audience use these popular platforms" (African NGO). The representative only knew about Brave as an ASM platform for web searches and was never curious to know if other ASM platforms existed.

The Nigerian company's representative reported using Facebook, Instagram, Twitter, WhatsApp, and LinkedIn as their preferred platforms. Other mainstream social media platforms were considered, but they chose these platforms because "They were the most popular ones. It is a herd effect. They are the ones we are used to, that we see other businesses use. That is why we started using them. Because remember, we are chasing our clients, so anywhere we think they exist, we go" (Nigerian company). They were not aware of the existence of any ASM platform.

Theme B: Sense of Choice (what level of confidence does the informant express when it comes to being able to choose other platforms beyond those they are already familiar with?)

Canadian NGOs representative reported that they had considered using platforms like Tiktok and Telegram for communication, but "the objectives on Tiktok to our organization will not be in line" (Canadian NGO). On a personal note, the representative had heard about Diaspora and has an account but only uses it to "search a particular subject in terms of social media alternatives, the structure of the user interface, or just to get a few ideas and a few information there, but not heavy usage of it in terms of engaging with people and all that" (Canadian NGO).

African NGOs representative reported that she is only aware of Brave, an open-source search engine platform she uses instead of Google. They were considering using Tiktok as well to disseminate information to their target audience and have a high level of confidence when it comes to choosing other platforms beyond those they are familiar with as they are passionate about decolonizing the internet and are open to exploring social media alternatives, provided they can reach out to a large portion of their target audience through it.

The Nigerian company's representative expressed high confidence when choosing other platforms beyond those they were already familiar with, provided that the platform houses its target audience. He explained, "If you ask me that question as an individual, I am comfortable trying ASM platforms, but as a business, it may be a waste of my time. If I talk to a few people I am targeting, and they are not on those platforms, then there is no reason I am going there" (Nigerian company).

Theme C: Use of Choice (what choice did the informant eventually make, and what level of confidence does the informant have in their choice?)

Canadian NGOs representative expressed high confidence in using mainstream social media platforms like Facebook and Twitter due to the number of users these platforms have and their "premium design and functionalities" (Canadian NGO).

African NGOs representative expressed high confidence in using mainstream social media platforms like Twitter, Facebook, Instagram, and Linkedin due to the number of users these platforms have. They were aware of one open-source platform (Brave) because, according to the informant, "I noticed that Google was taking so much of my data, and I was uncomfortable with it" (African NGO).

Due to the size of the mainstream social media platforms' subscriber base, the Nigerian company's representative also indicated high confidence in utilizing popular social media sites like Facebook, Instagram, Twitter, WhatsApp, and LinkedIn.

Theme D: Achievement of Choice (What has been the experience since the informant made their choice, and what level of confidence does the informant have in matching the outcome of their choice to its expectations at the outset?)

The informant from Canadian NGO seemed happy with their ability to reach a large audience through their mainstream social media platforms, as was expected at the onset by highlighting that "it is about the penetration…and popular social media platforms are already established" (Canadian NGO). When asked if they would consider ASM, the informant

responded, "We are currently on Twitter and Facebook, so one is serving as an alternative, but to add another one, I think the question will be, why do I want to suggest a different and additional social media? If I feel that the world is moving towards the decentralization aspect of infrastructure. Yes. I will advise the organization to look into it, but if the current situation does not require that, I will not suggest they create it" (Canadian NGO).

African NGOs representative expressed that their organization is happy with the outcome of their choice so far as they can reach a broad audience. However, they seemed open to exploring ASM as the representative reported, "We have not discussed ASM yet, and I reckon we have not had it because people are unaware. After all, if we are complaining about decolonizing the media, we might want to look at what is the alternative" (African NGO).

For the Nigerian company, the initial expectation was that they would be able to reach a sizable audience through their popular social media channels, and the informant appeared pleased with the outcome. When asked if they would consider using ASM, the informant responded, "I can experiment with it, see whether it is nice or not. If use means deploying it actively, then maybe not. If I find out many people are there, then maybe, yes. I am happy to test it" (Nigerian company).

4.2 Data Analysis

My data analysis was in two parts: the first was an iterative and rigorous audit of the Fediverse to identify the distribution of instances worldwide and ascertain if any Fediverse platform exists in sub-Saharan Africa. The second was a qualitative content analysis using Kleine's choice framework to guide my research questions and coding process for comparing and analyzing excerpts of the semi-structured interviews conducted.

Following the interviews, I transcribed and coded the recorded conversations into four groups following Kleine's choice framework to find patterns and emergent codes using qualitative content analysis. Because I had a limited sample size, I used manual coding with Excel spreadsheets to get as near the data as possible (Mayan, 2009); manual coding allowed me to easily draw out the data collection experience (Fielding, Lee, & Lee, 1998). The transcription

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of the interviews allowed for earlier precoding (Mayan, 2009; Saldaña, 2015), which identified phrases or brief sentences that reflected the material's content. I used two columns for transcripts: raw data and notes collected during the coding process (Saldaña, 2015). Potential insights occurred while I categorized the transcribed data from the interviews, providing some answers to my research questions utilizing Strauss and Corbin's (1990) approach for data analysis under the Grounded theory (Heath & Cowley, 2004). Theoretical sensitivity was useful in helping me to develop my research questions by applying guidelines from Kleine's choice framework to collect data from key informants and steering interview conversations based on my initial knowledge of my research study. Theoretical Sensitivity also helped me to recognize patterns and key concepts during the coding process of the transcribed data for easy analysis.

Validity and Reliability

Denscombe (2010) defines *validity* as "the accuracy and precision of the data" while reliability "relates to whether or not a study instrument's effect is neutral and constant throughout several occasions of use." (p.298). Mayan (2009) explores in depth how to define notions like validity and reliability in qualitative research and how to guarantee these investigations are as robust as those utilizing quantitative designs. Through the act of triangulating data from three Fediverse tracking websites and interviewing two groups of key informants, my qualitative design attempted to account for data validity and reliability as all three audited websites and transcripts from key informant interviews presented similar data as a result of consistency in data collection and structuring open-ended interview questions that follow the same sequence for all interviews (Golafshani, 2015; Arksey & Knight, 1999; Patton, 2008). Thurmond (2001) describes triangulation as "the combination of at least two or more methodological approaches, data sources, investigators, theoretical perspectives, or data analysis methods" (p. 1). Patton (2002) suggests that triangulation helps strengthen and validate results by combining methods, techniques or data sources. Arksey and Knight (1999) point out that validity calls into question "whether you are genuinely investigating what you profess to be examining" (p. 51). As such, I structured my open-ended interview questions to respond to one or more of the RQs.

Study Limitations

The significant limitations of this study are the small sample size (the limited number of individuals who were asked to participate in this research) and the difficulty in reaching a larger sample of potential participants without travelling to the country. Despite my persistence, most of the participants I contacted never responded.

4.3 Discussion and Key Takeaways

From analyzing the feedback received from two groups of key informants, namely the administrators of four Mastodon instances (Group 1) and four communication practitioners in sub-Saharan Africa (Group 2), I noted the following highlights.

4.3.1 **Theme A**. At the awareness of choice level, in responding to how/why participants chose their current platform(s) and whether other choices were considered or are available to them or their organization.

- In Group 1, all administrators agreed that they chose Mastodon because of its features similar to Twitter or because they were fascinated by it. They also confirmed an exponential increase in the number of new users from the Global North joining their instances since Twitter's takeover by Elon Musk. Some administrators saw as many as 300-500 new sign-ups a day. Daily sign-ups represent an increasing awareness level in the Global North.

- Key informants in group 2 either had no prior knowledge about ASM or had personal experience using them. However, they did not intend to utilize them in their organizations as their intended audience is not present on these platforms.

4.3.2 **Theme B**. At the sense of choice level where we determine what level of confidence the informant expresses when it comes to being able to choose other platforms beyond those they are already familiar with.

- Key informants from group 1 expressed high confidence about choosing other ASM platforms beyond those they are already familiar with but may not need it at the moment.

- Group 2 key informants seemed comfortable using CSM platforms because of their user population, interface and innovation rate and did not see a need to explore ASM for organizational purposes. However, they expressed their willingness to explore ASM platforms for personal use.

4.3.3 **Theme C**. At the use of choice level where we determine what choice the informant eventually makes and what level of confidence the informant has in their choice.

- Key informants in Group 1 chose ASM for personal reasons, while Group 2 chose CSM platforms due to their large subscriber base (the network effect).

- Out of the four Mastodon administrators I spoke with, three had chosen to outsource their server hosting to European data centre companies, while one had acquired an existing instance and hosted it himself. This preference for server outsourcing may have contributed to the concentration of instances primarily in Europe, even though the administrators themselves are located elsewhere. More study is needed to examine the methodology used by Fediverse tracking websites, especially when establishing the location of instances.

- All administrators also agreed that setting up their instance was easy as they only had to follow the guidelines on the main Mastodon webpage. It is worth pointing out that the ASM platforms' user interface is not always easy to navigate, as reported by the administrator of Mastodon.world, who said, "I have noticed that a lot of less IT skilled people have issues with starting to use Mastodon, getting the whole idea of how it works. Some people create an account on my server and then try to log into another server with that same account; that is not how it works, but people need to understand that, and sometimes that is not easy. Twitter is easier" (Mastodon.world administrator).

- During my conversation with a communications practitioner from Nigeria, it was suggested that Nigeria and Africa utilize these social media platforms not because they fully understand their implications or are unconcerned with the negative consequences of their

harmful practices but rather because others are using them, a phenomenon he referred to as the "bandwagon effect."

4.3.4 **Theme D**. At the achievement of choice level where we determine what has been the experience since the informant made their choice and what level of confidence the informant has in matching the outcome of their choice to its expectations at the outset.

- All key informants from both groups expressed satisfaction with their choices and confirmed that the outcome met their expectations.

- Administrators from Group 1 agreed that moderation was a significant challenge for running an ASM instance as it is a full-time job with no remuneration, and all moderators and administrators work as volunteers. Access to adequate funds puts the sustainability of ASM at risk, as the continued existence of these platforms is solely reliant on crowdfunding. The administrator of Mastodon.world reported, "Obviously moderation is much work, and you do not get paid for it, so that is an issue" (Mastodon.world administrator).

- According to one Mastodon administrator, a major disadvantage of using Mastodon instances is the absence of certain features, such as the ability to "create groups, click on a donation button for charitable causes, live streaming, and a marketplace similar to Facebook" (Masthead.social administrator). The administrator of Masthead.social also noted that ASM platforms do not allow for adding to the existing code or enhancing the functionality of individual instances, resulting in poor authentication of user identities (Masthead.social administrator).

- When asked what they felt were the barriers to the awareness and active use of Fediverse platforms, key informants expressed the following:

  i. Lack of infrastructure in the Global South.

  ii. Insufficient promotion and publicity on radio and television; only a few people know about Fediverse platforms. Fosstodon's administrator calls this "a lack of discoverability."

iii. Compared to most mainstream platforms like Twitter and Facebook, the user interface is challenging to navigate. The administrator of Infosec.security reported that "the usability is just candidly, not like at the same level of Facebook."

iv. Lack of innovation. The administrator of Masthead.social reported, "The only thing with Mastodon is functionality and the ability to evolve. It has not changed in years."

v. Most administrators also mentioned the network effect. The network effect refers to the value users ascribe to a platform due to the number of people using it. This happens because when more individuals join a network, there are more possible interactions between users, which leads to increased chances for communication, cooperation, and information sharing (Gehl, 2018; Srnicek, 2016). Fosstodon's administrator said, "if you join, none of your friends are there." The Mastodon.world administrator reported, "I use things like Facebook because other people use it, and I need to follow them, so I cannot convince everyone to leave Facebook." One communication practitioner described it as the "herd effect" as he explains further, "It can very easily depict why businesses choose what they choose. They choose it because the people they are looking for are there, so it is basically where the people are. That is where we will go" (Nigerian company).

iv. Lack of access to funds. All key informants from Group 1 admitted that donations from the public and the personal funds of administrators mainly run their instances. The monthly costs of hosting servers, increasing servers' storage capacity when growth increases, and the need to compensate volunteers who moderate the instances remain a concern. The respondents from group 2 also shared the same concerns about business sustainability: African NGO explained, "I feel like the alternative media will end up being like the current media because of sustainability." Canadian NGO reported, "What would be their approach to building their user base and having a strong audience? Would they still stick to it, or will they even sell it?"

4.4   Other Barriers to the Awareness of ASM

     Several academic and communication scholars have put forward potential reasons for the low adoption and awareness of ASM. Many participants I interviewed echoed similar sentiments based on their experiences running Mastodon instances and using other social media platforms. some identified barriers are also applicable in Nigeria, including:

1.   Lack of awareness: This could stem from inadequate funds to empower individuals and groups to spread the word about ASM. Additionally, inadequate promotion on radio and television can further worsen this issue. Another factor is the presence of digital literacy challenges, with many people in sub-Saharan Africa and rural areas lacking the necessary computer skills (Kidd, 1999; Veletsianos et al., 2017). Fosstodon's administrator refers to this issue as "discoverability."

2.   Lack of government support refers to inadequate or nonexistent government support in providing funds and infrastructure to aid the growth and development of ASM platforms. Governments of most countries neither use ASM for their communications nor support ASM by raising awareness (Gehl & Synder-Yuly, 2016). Zuboff (2019) proposes mustering the resources of our democratic institutions, such as government intervention and the implementation of the law, as possible solutions to support the growth of ASM.

3.   Lack of Innovation. Not enough innovation to put ASM at par with their CSM counterparts poses user acceptance barriers, especially concerning aesthetics and ease of use (Gehl, 2018; O'Connell, 2013). Gehl (2015) emphasizes the significance of enhancing the aesthetics of specific ASM platforms to increase user involvement, particularly in media content development and site design. Gehl (2014a) also points out that installing or running ASM can often take much work for lay users, hindering its use. ASM platforms have been known to have issues with ease of use, making users quickly fall back to CSM when they need help understanding how to use these alternative platforms.

4.   The network effect increases the value of CSM platforms, creating a challenge for users to switch to ASM, as their acquaintances are mostly present on CSM platforms (Mouakket,

2015; Al-Azawei, 2018). Gehl (2018) describes the network effect as "the tendency for people to use communication technologies because people they know use them." Srnicek (2016) describes the network effect as "the more numerous the users who interact on a platform, the more valuable the entire platform becomes for each one of them." (p. 95, Kindle Edition). By offering multi-sided business opportunities, platforms such as Facebook carve out a unique position for themselves in the market and establish their presence. Facebook, for example, has consolidated its market share in several countries, particularly those rolling out Facebook's Internet.org Free Basics platform in the Philippines, Nigeria, and, previously, Myanmar. In these countries, Facebook has become synonymous with 'the Internet' (Vaidhyanathan, 2018; Mensah & Onyancha, 2021). Such actions point to the limits of a purely economic perspective on platform power. Gow (2022) has called for diversification in using platforms and ICT tools to prevent over-reliance on CSM. Gehl (2018) highlights Ello's suggestion of a 'Public Benefits Corporation' as an economic model, which can see ASMs evolve into not-for-profit organizations funded through donations.

5. Sustainable revenue-generation business models. While CSM platforms boast sufficient funds for innovation and growth due to their capitalist business models, Fuchs and Sandoval (2015) explain that ASM platforms need adequate funding and more awareness. ASM survives mainly on initial start-up grants, donor contributions and the personal funds of server owners. There is no sustainable way of earning revenue to keep the ASM platforms afloat should these sources of funds discontinue. Amankwah-Amoah (2019) posits that the need for financial credit availability is a barrier to the use of technology in sub-Saharan Africa. Gehl (2018) points out that:

> "ASM platforms often do not run advertisements but do little else to consider financial viability. Less work has been done in ASM to make these systems financially stable. Many ASM sites come and go as funding depletes, and coders lose interest (as has happened to many ASM sites, including Lorea, TalkOpen, Galaxy, and Crabgrass)." (p.13).

Possible solutions proposed by scholars include:

1. Fuchs & Sandoval (2015) propose taxing the top companies that use intensely surveillant advertising practices, like Google and Facebook, and channelling these levies to the development of ASM.

2. Gow (2022) suggests steps for Fediverse platforms to become viable alternatives in his recent article in The Conversation academic journal. They include

    i. Expanding the general public's knowledge of the existence of ASM sites. Gow suggests that community coalitions and educational institutions raise awareness and develop digital abilities and resources.

    ii. Boosting the communication between Fediverse developers and users to enhance further the software's usability, dependability, and security.

    iii. People and organizations must discover the will to regulate our media system on an individual and communal level.

4.5 Factors that Influence the Awareness of ASM

From my interview with group 2 key informants, factors that generally influence the awareness and use of Fediverse platforms in Nigeria include:

1. Advertisement or Marketing: Fediverse platforms do not engage in radio and television advertisements to promote awareness nor permit advertisements on their instances for generating revenue. The inability to advertise on radio and television in the Global South restricts the ability to raise awareness as radio and television advertisements are more widely acknowledged and trusted than word-of-mouth. Therefore, people may only become aware of ASM platforms through advertising. One communication practitioner mentioned that "the bandwagon effect influences us. For instance, we do not care about you if you are not on CNN. We want to see TikTok where TikTok trends. If we see it on CNN, We are on TikTok" (Nigerian company). Another respondent explained that ASM platforms "need to do a very intentional campaign to tell Africans they are there. Because people do not know they are there" (African NGO).

2.   Network Effect: Key informants in both groups all agreed that the network effect is a
      significant factor. The network effect refers to a rise in the value of social media platforms
      as more people subscribe to and use them (Srnicek, 2016). As CSM has gained popularity
      in all nations, its user base has grown exponentially. Hence, people who migrate to ASM
      platforms find that most people they enjoy communicating with are not there. The network
      effect makes them feel isolated and lured to keep their CSM platform active to not lose
      touch with those who matter to them.

4.6 Summary

To summarize, the result of this study suggests that in providing answers to RQ 1, the
Fediverse audit I performed on three websites and the semi-structured interviews I conducted
with communication practitioners in Nigeria proved that ASM (Fediverse) platforms are
nonexistent in sub-Saharan Africa and unknown in Nigeria. Although I had found one mastodon
instance in Uganda, a not-for-profit organization (an orphanage), all efforts to reach the instance
administrator for an interview proved abortive.

In providing answers to RQ 2, communications scholars and the key informants that I
interviewed generally agree that some barriers to the awareness and use of Alternative Social
Media (Fediverse) platforms include: lack of awareness, lack of government support, lack of
innovation, the network effect, and sustainable revenue generation business models. These
barriers can also be applied in the Nigerian context.

To answer RQ3 of how these findings can help us understand the factors that generally
influence the use of Fediverse platforms in Nigeria, the communication practitioners I
interviewed agreed that advertisements or lack of it and the network effect generally influence
the awareness and use of ASM. Theoretical sensitivity helped me develop interview questions
using Kleine's choice framework, leading interview conversations with key informants and
observing patterns and key concepts in the transcribed data throughout the coding phase for
easier analysis.

The limitations of this research include the small sample size of research participants and the difficulty of reaching a larger sample of potential participants for group 2 interviews (that is, not-for-profit organizations in Africa who use social media for organizational communications) without travelling to their home country. The response rate of prospective participants was very low, as I would have liked to interview more not-for-profit organizations that use social media for communications. Still, getting people to respond to my email and participate in my interviews took much work.

One implication of the findings of this study is that Nigerians place high importance on the network effect to influence their choice of social media platforms regardless of the type of organization. Nigerians prefer to use social media platforms with a high user population as they have a high probability of connecting with family, friends and organizations they already know. With this knowledge, Nigeria may still need time before they welcome the emergence of ASM.

In the concluding chapter, I will provide an overview of my research study, summarize my findings, and provide recommendations for future research.

CHAPTER 5 - CONCLUSION

A large and growing body of literature on ASM has shown that its decentralized network topology allows for collaboration and interoperability with other platforms while ensuring users' privacy and the absence of surveillance capitalism. On ASM platforms, there are no advertisements, studies or conditioning of users' behaviour as their efforts contribute to a common good rather than enriching platforms (Gehl, 2018; Gehl, 2020; Gow, 2021; Kwet, 2020; Zuckerman, 2020). To date, there is a wide gap in the ASM literature between the Global North and the Global South. Also, Fediverse instances appear to be nonexistent in sub-Saharan Africa, particularly in Nigeria, a country that accounts for 82% of Africa's information and communications technology market and one that has witnessed several government interferences about mainstream social media use (Bagwaiya, 2021; Busari, 2021; Burke, 2022; The Guardian, 2022).

My research project sought to explore Alternative Social Media platforms as an emerging social network and, mainly, their level of awareness (if any) in Nigeria. This study sought to find existing Fediverse platforms and existing literature pointing to Fediverse platforms in sub-Saharan Africa and to assess the extent to which people are aware of and use non-commercial social media platforms in Nigeria by seeking answers to the following research questions (RQs):

RQ1 - Are there existing active users or active user groups on the Fediverse in sub-Saharan Africa?

RQ2 - What barriers exist to the awareness and use of Alternative Social Media (Fediverse) platforms in Nigeria?

RQ3 - How can these findings help us understand the factors that can generally influence the use of Fediverse platforms in Nigeria?

My research study began with a review of the existing literature in Chapter 2 to search for studies that point to ASM in sub-Saharan Africa. After that, I performed a two-part study which involved conducting a rigorous audit of three Fediverse tracking websites to determine the total number and distribution of existing instances and identify where ASM platforms exist

worldwide, particularly in Africa. Next, with this information, I shortlisted eight key informants categorized into two groups and conducted open-ended semi-structured interviews using random sampling and snowball sampling methods. The theoretical frameworks used for this qualitative study were techniques from the Grounded theory and Kleine's choice framework; these can be found in Chapter 3 for methodology. In my findings and discussion chapter (see Chapter 4), I presented the data from the Fediverse audit. I analyzed the data acquired from the interviews using qualitative content analysis, and Kleine's choice framework was used to draft the open-ended interview questions and code the data.

5.1 Summary of Findings

The findings from this research were derived from reviewing existing literature, auditing three Fediverse tracking websites, and analyzing two groups of key informant interviews as a data-gathering strategy. From the analysis of all data collected, the literature reviews and Fediverse audit confirmed a gap in the degree of existing literature on ASM and the nonexistence of ASM platforms in sub-Saharan Africa as a response to my first research question (RQ1). I now confirm that no literature references ASM in sub-Saharan Africa, and no ASM platforms currently operate in sub-Saharan Africa or Nigeria.

Furthermore, the results from the key informant interviews and literature reviews provided valuable insights into what it takes to manage instances, including crowdfunding and member volunteering, as well as the barriers to raising awareness and increasing the use of ASM platforms. These barriers include the absence of advertisements on radio and television, poor user interface, the network effect, lack of innovation, and inadequate access to funds. These barriers can also be applied in the Nigerian context in response to my second research question (RQ2). The collected data also indicates potential factors that could influence the use of Fediverse platforms in Nigeria, such as advertising or marketing on radio and television and attracting more users to Fediverse platforms to raise its value, as per the third research question (RQ3). Alternative social media platforms offer an avenue for improving our policies and practices regarding social media by enabling users to exercise control over their data and privacy and participate in formulating platform policies. The theoretical frameworks used in this research

were techniques from Grounded theory and Kleine's choice framework to gain insights into my research questions.

5.2 Findings in Context

My findings contribute to the literature in the field by drawing attention to the nonexistence of ASM literature and its platforms in sub-Saharan Africa, providing insider information on how ASM platforms are managed and challenges faced, and factors that could influence the use of Fediverse platforms in Nigeria. One point from group 1 key informant interviews (interviews with ASM administrators) was that most instance administrators outsourced their servers' hosting to European data centre companies. Outsourcing instance servers could explain the cluster of instances mainly in Europe, even though the administrators of these instances reside elsewhere, as reported from the Fediverse audit I conducted. It could also explain why there is no evidence of the presence of ASM platforms in sub-Saharan Africa, even though one of my key informants confirmed that he has a Diaspora account. Server outsourcing could mean platforms may be more widespread globally than the Fediverse audit results portray.

Another significant finding is the network effect's key role in influencing the awareness and use of ASM in Nigeria. Results from key informant interviews showed that individuals and organizations in sub-Saharan Africa and Nigeria use social media to communicate with people they know and reach their target audience. The network effect raises the value of platforms as more people use them; hence, platforms gain popularity due to their user population and the ability to attract more users. The implication of the network effect in sub-Saharan Africa and Nigeria is that individuals and organizations value CSM platforms more because of their user population and increased user engagement as they can communicate with more people and reach target audiences. Hence, users in this region are hesitant to use ASM because people they know or wish to connect with are not on them.

For future research, these findings may mean further research to look more closely at barriers to awareness and adoption of Fediverse platforms in other countries of the Global South to compare with findings from this study. These findings may also mean further studies into how

to raise the awareness and use of ASM, especially with community and not-for-profit organizations in Nigeria that do not use social media for business development and profit making. Commercial organizations in Nigeria could also consider using ASM as a dedicated platform for employees to communicate with one another, celebrate, mentor, and share information. Organizations with a large number of employees could raise the value of the Fediverse instance amongst colleagues, thereby increasing the network effect of the instance.

Gehl (2018) provides another perspective on the network effect. He suggests that ASM platforms can be as valuable as CSM platforms to users if they combine evolving media methods with technological innovations like virtual reality or the Internet of Things (IoT). Such improvements can attract and retain more users and make ASM platforms more valuable.

Leading communication scholars like Robert Gehl, Dorothea Kleine, Gordon Gow, Ethan Zuckerman, Christian Fuchs, and Dorothy Kidd provide rich perspectives on possible ASM awareness barriers, such as the lack of government support, network effect, lack of innovation, and limited access to funds. They proposed measures such as taxing large businesses like Google and Facebook and utilizing the revenues to fund ASM platforms, community coalitions, the Government's use of ASM to share information, and educational institutions to promote awareness. These measures can also be applied in the African context. Kleine's choice framework helps us understand what users consider before choosing social media platforms. This knowledge can assist in addressing the barriers to ASM awareness and use by focusing on what users consider when selecting their platforms and taking initiatives to improve ASM features accordingly while raising its awareness in the Global South, thereby increasing its user population and, ultimately, increasing the value of ASM platforms.

Organizations in Sub-Saharan Africa or Nigeria can choose to create their Fediverse instance on any Fediverse platform and host the server where they reside. As more organizations create online communities and competitors try to replicate what these organizations have, we may start to see instances sprout on the African continent. Organizations in sub-Saharan Africa or Nigeria can use fediverse platforms to develop a bespoke, non-commercial online community where colleagues, partners, and acquaintances can exchange memories, news, and other vital

information. Large-scale businesses and multinational organizations in sub-Saharan Africa can enhance the discoverability of ASM platforms by providing ASM servers to educational institutions, not-for-profit organizations or local governments as part of their technology for development and corporate social responsibility (CSR) projects. Such projects can potentially support the awareness and use of ASM platforms in sub-Saharan Africa.

5.3   Research Limitations and Recommendations

The limitations of this study include the limited sampling size and the limited variety of key informants invited to participate in this research, as most of the participants I contacted never responded despite my persistence. In addition, the difficulty of reaching a larger sample of potential participants without travelling to the country posed a limitation.

For future direction, I would recommend further research to look more closely at barriers to awareness and adoption of Fediverse platforms in other countries of the Global South to compare with findings from this study. The emphasis should be on engaging with more not-for-profit organizations, activists, or community organizations in sub-Saharan Africa who may be receptive to using ASM for communication, rather than organizations who utilize social media to market their business and are thus constrained by the network effect, which tends to steer commercial organizations towards CSM platforms to enhance their visibility and expansion. Promoting ASM platforms among not-for-profit and community organizations in sub-Saharan Africa could enhance discoverability or foster dialogue around the possibilities of ASM. This is because ASM safeguards users' privacy, promotes interoperability among Fediverse platforms, and allows for user participation in the governance of the platforms.

Some examples of organizations that could benefit from using ASM are non-governmental organizations (NGOs), orphanages, local and state government agencies that wish to reach out to different communities of practice (COP), community radio and television, and organizations that focus on ICT for Development (ICT4D). More study is also needed to examine the methodology used by Fediverse tracking websites, especially when establishing the location of instances.

5.4 Conclusion

The Fediverse (ASM) refers to federated social networks that run on free, open-source software and provide user privacy and protection. Findings found little to no awareness in Nigeria, suggesting low or no awareness in sub-Saharan Africa and likely across other parts of the Global South. This study aimed to identify gaps in the degree of coverage of ASM literature and Fediverse platforms in sub-Saharan Africa and identified the factors that appear to influence the awareness and use of Fediverse platforms in Nigeria.

To address Research Question 1, which investigates the existence of active users or user groups on the Fediverse in sub-Saharan Africa, both the Fediverse audit and semi-structured interviews indicate that ASM platforms are currently non-existent in sub-Saharan Africa and are not well-known in Nigeria.

Concerning Research Question 2, which explores the barriers to the awareness and use of ASM in Nigeria, my interviews with key informants suggest that some barriers include lack of awareness, insufficient government support, limited innovation, network effects, and unsustainable revenue generation business models. These barriers apply equally to the Nigerian context.

Finally, in response to Research Question 3, which seeks to understand the factors that generally influence the use of Fediverse platforms in Nigeria, the communication practitioners I interviewed in Nigeria concurred that the lack of advertisement of Fediverse platforms on radio and television, as well as network effects, which refer to the value placed on commercial social media platforms due to their user population, and the resulting increased usage, are the main factors that influence awareness and use of Fediverse platforms.

While key informants noted that the network effect plays a dual role in the adoption and awareness of ASM, acting as a barrier on the one hand and a significant driver on the other, it is important to recognize that ASM goes beyond just targeting audiences for promotion or marketing. In fact, ASM has proven to be beneficial in facilitating communication and

collaboration among small online communities of practice, unlike CSM, which requires constant user base expansion to remain valuable.

This research study has looked at ASM awareness and use in the context of the Global South, generally looking at sub-Saharan Africa and focusing on Nigeria as a specific case study. This research study has contributed to the communications field by providing literature on the state of ASM awareness in Nigeria and drawing attention to the apparent nonexistence of ASM platforms in sub-Saharan Africa. Future research should continue to monitor the deployment of Fediverse instances in sub-Saharan Africa and the Global South more generally, looking for trends and developments in the adoption and use of these non-commercial platforms.

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APPENDICES

Appendix A: Recruitment Letter

Ethics ID: Pro00123927

Date

Dear [Key informant name],

RESEARCH TOPIC: Alternative Social Media as an Emerging Social Network: Exploring Alternative Social Media Awareness in Nigeria

My name is Elizabeth Nwachukwu, and I am a master's student working under the supervision of Dr. Gordon Gow in the Communications and Technology Department at the University of Alberta. As part of my master's degree, I am researching Alternative Social Media as an emerging social network. I am contacting you because I researched your website and found that your organization uses Social Media platforms for communications. Given your experiences with social media platforms, I feel that you are well-suited to contribute to this topic, and I would like to invite you to participate in this study.

If you decide to volunteer for this study, your participation will consist of a one-on-one semi-structured interview that will take approximately 30 minutes of your time. During the interview, I will ask you several questions to gain information about your knowledge of social media use for communications. With your permission, I would like to audio record the interview to ensure accurate transcription and analysis.

The University of Alberta Research Ethics Board has reviewed and approved this study.

If you would like to participate or require additional information to assist you in reaching a decision about participating, please do not hesitate to contact me at **enwachuk@ualberta.ca.** You may also contact my supervisor at **gordon.gow@ualberta.ca**.

Kind regards,

Elizabeth Nwachukwu

Graduate Student

Appendix B: Consent Form

CONSENT FORM

PARTICIPANT CONSENT FORM

Title of Study: Alternative Social Media as an Emerging Social Network: Exploring Alternative Social Media Awareness in Nigeria

Contact Information
Principal Investigator Name: Elizabeth Nwachukwu
Affiliation: University of Alberta

Email: enwachuk@ualberta.ca

Research/Study Coordinator: Elizabeth Nwachukwu

Supervisor Name:	Professor Gordon Gow
Affiliation:	University of Alberta
	Mailing Address: Room 4-26 Tory (H.M.) Building 11211 Saskatchewan Drive NW Edmonton, AB T6G 2H4
Email:	gordon.gow@ualberta.ca

You are invited to participate in a research study on Alternative Social Media. Before you participate, a study team member is available to explain the project, and you are free to ask any questions about anything you do not understand. You will be given a copy of this form for your records.

Why am I being asked to take part in this research study? You are being asked to be in this study because you have experience using open-source software and social media platforms. Commercial Social Media (CSM) platforms like Google, Twitter and Facebook have played an essential role in empowering the public to create their media. However, this comes at a cost: surveillance capitalism, algorithms that determine what users see on their social media feeds, and business models that exploit user data for income generation. Alternative Social Media (ASM) platforms like Mastodon, PeerTube, and Go go Duck are emerging social networks that promise to provide a haven for users who wish to separate themselves from the unwelcome practices of CSM platforms. However, little or nothing is known about these platforms in underdeveloped countries like Nigeria.

This study aims to identify gaps in the coverage of Alternative Social Media platforms in sub-Saharan Africa and better understand the factors that can promote the awareness and use of ASM in Nigeria.

Brief Research Abstract

Commercial Social Media platforms (CSM), like Facebook, Youtube and Twitter, have played an essential role in empowering online communities and user-generated content. However, they have also been linked to unethical practices in their quest to dominate the online world. Examples of these practices include surveillance capitalist business models that exploit user data for income generation and "black-box" algorithms that determine what users see on their social media accounts, in some cases contributing to the perpetuation of hate speech and mental health concerns. Sadly, even after these alarming discoveries, many users remain hesitant to migrate to alternative platforms due to a lack of awareness or concerns about being disconnected from their online networks. Alternative Social Media (ASM) refers to an emerging movement that aims to develop and offer non-commercial platforms for users who wish to disassociate themselves from these disturbing practices without giving up the use of social media; Authors like Ronald Deibert (2020), Shoshanna Zuboff (2019), Ethan Zuckerman (2019) and Robert Gehl (2015) have advocated for a critical look into the motives of CSM platforms rather than their content with a focus on developed countries. We are now seeing a growing uptake of ASM, such as Mastodon, in the Global North and a corresponding body of scholarship with it. However, there remains a gap in the literature regarding the awareness and use of ASM platforms in Nigeria.

My research will report on findings from research looking at barriers to awareness and adoption of Fediverse platforms in Nigeria.

What will I be asked to do?

You will be taking part in one online interview session (depending on your choice) about open-source software and social media platforms.

- The time required to participate in this study (the virtual interview) is approximately 60 minutes.
- The study will be conducted virtually via Zoom video-conferencing platform and with your permission, audio/video recording will be made for the purpose of transcription and data analysis. You are allowed to turn off your camera.

What are the risks and discomforts?

It is not possible to know all of the risks that may happen in a study, but we have taken all reasonable safeguards to minimize any known risks to you.

What are the benefits to me?

While there may not be any direct benefit to you, results from this study may help us learn and raise awareness about Alternative Social Media Platforms and may benefit others in the future.

Do I have to take part in the study? Being in this study is your choice. If you decide to be in the study, you can change your mind and not participate at any time before the interview or up to 2 weeks after the interview. After that point, we cannot remove you from the study because transcription would have been completed by then and stored. To withdraw from the study, please contact Elizabeth Nwachukwu at enwachuk@ualberta.ca.

Should you remain in the research study, you may choose to withdraw some or all of your responses by contacting Elizabeth Nwachukwu latest, two weeks after the interview. We cannot remove your answers after that time because the information provided has become part of the data set, and the thesis would have been written.

Will my information be kept private? During this study, we will do everything we can to ensure that all information you provide is kept private. No information relating to this study that includes your name will be released outside the researcher's office or published by the researchers unless you give us your express permission. Sometimes, by law, we may have to release your information with your name, so we cannot guarantee absolute privacy. However, we will make every legal effort to ensure that your information is kept private

What will happen to the information or data that I provide?
The information you provide will form part of Elizabeth Nwachukwu's Master's thesis at the University of Alberta. It may also be used as part of public or academic presentations, in the news or academic publications, and, for example, during teaching. At no point will you (your community or organization) be identified in this work.

What if I have questions?
If you have any questions about the research now or later, please contact Elizabeth Nwachukwu at enwachuk@ualberta.ca.

If you have any questions regarding your rights as a research participant, you may contact the University of Alberta Research Ethics Office at reoffice@ualberta.ca and quote Ethics ID Pro00123927. This office is independent of the study investigators.

How do I indicate my agreement to be in this study?

By signing below, you understand,

- That you have read the above information and have had anything you do not understand explained to you, to your satisfaction.
- That you will be taking part in a research study.
- That you may freely leave the research study at any time.
- That you do not waive your legal rights by being in the study
- That the legal and professional obligations of the investigators and involved institutions are not changed by your participation in this study.

SIGNATURE OF STUDY PARTICIPANT

_____   Pseudonym (if necessary)

Name of Participant

_____   _____

Signature of Participant   Date

SIGNATURE OF PERSON OBTAINING CONSENT

Elizabeth Nwachukwu

_____   _____

Name/Signature of Person Obtaining Consent   Contact Number

A copy of this information and consent form has been given to you to keep for your records and reference.

What is the reason for doing the study?
The objective of this study is to understand the significant factors that may influence the awareness and use (or non-adoption) of ASM within community settings.

ALTERNATIVE SOCIAL MEDIA AS AN EMERGING SOCIAL NETWORK

Appendix C: Interview Guide for Mastodon administrators (Group A)

INTERVIEW QUESTIONS

Theme A: Awareness of Choice (what level of awareness does the informant have concerning how/why they chose their current platform(s) and whether other choices were considered or are available to them or their organization).

A.1 Tell me about the kinds of social media you are using for your organization now?

A.2 Can you remember what led you to choose that/those platform(s)?

A.3 Do you recall if you considered other social media platforms and why you might not have chosen them?

A.4 Are you aware of other social media platforms that you might use as substitutes or in combination with what you are using now?

Theme B: Sense of Choice (what level of confidence does the informant express when it comes to being able to choose other platforms beyond those they are already familiar with?)

B.1 How comfortable were you when you first considered using Mastodon?

B.2 Let's take a moment to consider your comfort level. You said you feel ….
Can you recall or explain why you might feel this way?

B.3 (if participant expresses low confidence) What steps would you need to take to feel more comfortable trying a different platform from what you are familiar with now?

B.4 (if participant expresses high confidence) What steps would you need to take to begin to explore or experiment with a different platform than what you are familiar with now?

Theme C: Use of Choice (what choice did the informant eventually make and what level of confidence does the informant have in their choice?)

C.1 Can you tell me what led you to choose the Mastodon platform and run your own instance?

C.2 Can you tell me about some of the challenges you faced in setting up your instance? Which was the biggest challenge and how did you overcome it?

     (a) Can you take me through the steps involved in setting up and running a Fediverse platform like Mastodon?

     (b) Tell me about what it takes to maintain a community like Mastodon. Are there any challenges with running it daily?

Theme D: Achievement of Choice (What has been the experience since the informant made their choice and what level of confidence does the informant have in matching the outcome of their choice to its expectations at the outset?)

D.1 Have your expectations been met through your Fediverse instance? Is there anything you'd do differently?

D.2 Have you considered using any other Fediverse platforms, such as Pleroma, Friendica, or Pixelfed?

D.3 What do you feel are the possible barriers to the awareness and active use of Fediverse platforms with organizations like yours in other countries?

Finally, Is there anything else you would like to add or comment on?

ALTERNATIVE SOCIAL MEDIA AS AN EMERGING SOCIAL NETWORK

Appendix D: Interview Guide for Communication Practitioners in sub-Saharan Africa

INTERVIEW QUESTIONS

Theme A: Awareness of Choice (what level of awareness does the informant have concerning how/why they chose their current platform(s) and whether other choices were considered or are available to them or their organization)

Can you tell me about your organization?

A.1 Tell me about the kinds of social media you are using for your organization now?

A.2 Can you remember what led you to choose that/those platform(s)?

A.3 Do you recall if you considered other social media platforms and why you might not have chosen them?

A.4 Are you aware of any alternative social media platforms like Mastodon, PixelFed, PeerTube, and Friendica that you might use as substitutes or in combination with what you are using now?

Theme B: Sense of Choice (what level of confidence does the informant express when it comes to being able to choose other platforms beyond those they are already familiar with?)

B.1(a) How comfortable are you in experimenting with or trying a social media platform different from what you are using now? (For those that don't know about Fediverse).

B.2 Let us take a moment to consider your comfort level. You said you feel ….
Can you recall or explain why you might feel this way?

B.3 (if participant expresses low confidence) What steps would you need to take to feel more comfortable trying a different platform from what you are familiar with now?
B.4 (if participant expresses high confidence) What steps would you need to take to begin to explore or experiment with a different platform than what you are familiar with now?

Theme C: Use of Choice (what choice did the informant eventually make and what level of confidence does the informant have in their choice?)

C.1 Can you tell me what led you to choose your current social media platform?

Theme D: Achievement of Choice (What has been the experience since the informant made their choice and what level of confidence does the informant have in matching the outcome of their choice to its expectations at the outset?)

D.1 Have your expectations been met through your social media platforms of choice? Is there anything you'd do differently?

D.2 Have you considered using any Fediverse platforms, such as Pleroma, Friendica, or Pixelfed? OR

D.3 Would you be willing to explore using an ASM platform even though it may be nonexistent in Africa? What do you think may be some of the challenges with running this platform in Nigeria?

D.4 What do you feel are the possible barriers to the awareness and active use of Fediverse platforms with organizations like yours in other countries?

Finally, Is there anything else you would like to add or comment on?

ALTERNATIVE SOCIAL MEDIA AS AN EMERGING SOCIAL NETWORK

Appendix E: Qualitative Content Analysis Matrix

S/N	SELECTED RESPONDENT QUOTES- GRP A	SIG. STATEMENT	EMERGENT CODE	REFLECTIVE MEMO
	THEME A - AWARENESS OF CHOICE			
1	It's like there's just not enough time in the day to, to put up another setup and maintain it and moderate it and all that stuff.	No	Factors involved in maintaining a community	
2	it'll be our little vanity url	Yes	Info	
	THEME B - SENSE OF CHOICE			
1	The instance thing just made sense to me. It's like the Twitter version. Its like Twitter and email got together. It's basically that and when everybody tries to explain it and it gets really complicated with, oh, there's all this things. And it's just like, no, no. It's like you pick, it's just like email.	Yes	Barriers. Respondents simplified definition of asm	
2	It's like you, you choose a place to be, whether it's Gmail or Hotmail or Yahoo, whatever. And then you sign in and you can send email to anybody and all your email still shows up in the same place. But, and that's really all it is. It's just like email. It's, it's not, People just tend to be complicated about explaining it cause there's, it's part of the Fediverse and there's all this and it just gets crazy weird if you try and get into too much detail.	Yes	Barriers. Respondents simplified definition of asm	
3	If you had to Just start off on the basics, you read up on what the platform is based on, such as the visuals, the users and the interface, see how things work, and see how the moderation works.	No	Factors	
4	Moderation, I've found after moving out of the Twitter space is something that I highly encourage, because some places just let it fly and that turns into a hurricane in no time. So, for me personally speaking, the fastest way to learn a new platform is just to jump in with both	Yes	Factors	

	feet and then just test it out, see how it works.			
5	And so now there's literally six times more people using our server than were using it before.			
	THEME C - USE OF CHOICE			
1	we use a hosting service called Masto.host, and it's a guy over in, I think he's in France, is where the servers are located.	Yes	info	This came as a surprise to me. I thought before this interview that instance administrator host their servers themselves.
2	It lets us focus more on the community. We are dealing with the accounts, dealing with the moderation, and being present in the timeline, which I feel is an important thing. It's one thing to have an instance out there, but it's another thing to let people know that you actually use it.	Yes	info	
3	our moderation staff has been taking shifts. I mean, these people are volunteers, where, none of us get paid.	No	barriers	ASM is run mostly by volunteers. This model may not be sustainable in the long run
4	...they're all volunteers and they have been taking shifts to get the accounts approved. Um, so that's probably the biggest challenge right now.	Yes	barriers	
5	The first thing you'll obviously need, you need the hardware to run it on. And I've, there's, I've talked to people that are that self host and they do it from their house.....getting the hardware, getting the pipe to use, uh, software installation is fairly complicated.	No	info	
6	then once you get the software up and running, then you have to establish communication with the greater Fediverse, which sometimes can be a little challenging because, um, servers only begin communicating with the other servers they know about.	Yes	findings / barriers	

7	And when you first started up, they don't know about anything. So, um, it's entirely possible to run a Mastodon instance that doesn't federate. So, um, and that's, you'll run into some situations like that, um, where there are, um, platforms, I guess you'd call them that use Mastodon software but don't federate with the rest of the Mastodon or Fediverse as they call it.	Yes	info	
8	if you want to federate, you have to kind of get people, get your server to acknowledge or get acknowledged to buy one of the existing federated servers. And then you start to learn about and grow and figure out all these different servers and you can check and see, uh, I think it's actually an open part of the API where you can just ping the, the remote server and see which servers they know about.	Yes	barriers	
9	once you kind of have established, um, you know, your presence and things, that's pretty much after that, you know, everything settles down into moderation and content stuff.	No	factors	
10	challenges I run into daily. Um, not, I mean, not really. I mean the new accounts, the reports. So reports are behavioral reports. Um, one of our biggest issues is we run, we run into constantly is uh, we're an English only instance, um, which we did for, to ease moderation.	No	factors / barriers	Language barrier
11	Cause it's impossible for us to moderate if we have no idea what they're saying. So, um, um, so that is actually probably the one that comes back to us the most. Um, so. Yeah, that's our daily challenge.	Yes	barriers	Language barrier
	THEME D - ACHIEVEMENT OF CHOICE			
1	I'm really proud of what we've got. Yeah. Um, our, our instances, I'm super proud of it. It's worked out really well. It's one of those things like you just kind of feel like I did even the slightest thing differently, It would all fall down	No	info	symbolic interactionism. The sense of accomplishment is a source of motivation to keep going.
2	I actually have a Pixel Fed account. Um, so I do use that for personal stuff mostly because, uh, it's an entirely different setup than Mastodon.	No	info	

3	And a lot of people do, there's a lot of people that have, you know, there's not. If you're going to just be interacting on those platforms, you don't really need to have an account on there. You can follow somebody on pixelfed with your account. It's no big deal. And same with Friendica or pleroma uh, so the only reason you would want to have those accounts is if you if they're offering something different, which you know, Where is it?	No	Info	Interoperability of platforms
4	I think the biggest barrier is just. Discoverability. Um, there's also like the, the chicken and the egg problem, which is, you know, people don't use the platform because they can't, because people don't use the platform. You know, if you join, none of your friends are there.	Yes	Barriers	Discoverability
5	So you don't hang around and none of your friends join because you're not on there either. And so that's a, a constant thing, and I think that that's a problem regardless of country that you're in. The other ones I've run into is, um, there's, and this is something that we play into unfortunately, but you know, it's, um, right now the majority of the people are on there are English speakers	Yes	Barriers	Network effect

S/N	SELECTED RESPONDENT QUOTES- GRP B	SIG. STATEMENT	EMERGENT CODE	REFLECTIVE MEMO
	THEME A TO C			
1	Facebook, Instagram, Twitter, LinkedIn,	No	Info	Social media platforms used by respondent
2	They, were the most popular ones. It's a herd effect. They are the ones we are used to, that we see other businesses use. That's why we started using them. Because remember, we're chasing our clients, right? Yeah. So anywhere we think they exist, we go.	Yes	Factors	network effect or herd effect
3	I've never heard of them	No	Findings	Respondent has never heard of any ASM platform

4	If you ask me that question as an individual, I'm comfortable with trying, but as a business, it may be a waste of my time. If I talk to a few people that I'm targeting and they are not on those platforms, then there's absolutely no reason I'm going there.	No	Barriers	Respondent is willing to explore ASM as an individual but not for business purposes
5	I use that as an example. It can very easily depict why businesses choose what they choose. They choose it because people they're looking for are there.	Yes	Barriers	
6	so its basically where the people are. That's where we'll go.	Yes	Barriers	
7	Yes, exactly. So something else needs to happen for, for everyone to migrate somewhere else. Yeah. And right now the ones you've mentioned haven't quite achieved that level of interest?	No	Findings	
	THEME D			
8	I get a lot of recognition by putting things out on social media to the point I recently have begun to question our press releases because when we do press releases, . Um, it's when you put it on social media that people then get to still see the press release more,	No	Info	Gratification and reward perceived from the use of social media (uses and gratification theory???)
9	I can experiment with it, like go check it out, see whether it's nice or not. If use means deploying it actively, then maybe not. If I find out that a lot of people are on there, then maybe, yes. I'm happy to test it.	No	Info	
10	achieving that network effect. Um, I dunno how Instagram came into the market. I dunno how WhatsApp became so available. The fact is that before they ever set up office in Nigeria, Nigerias were already using them. So how did they achieve it? I don't know.	Yes	Barriers	Challenges with running asm in nigeria
11	the major challenge is marketing and marketing may not be traditional marketing, network marketing. I mean, how, how will these platforms be known and used? how will it become popular? Yeah, because the only reason people go to social networks is the size of the network or the product itself.	Yes	Barriers	

12	So if any of this social media platform has a very good product and can match it a little bit of marketing, then it'll reduce. The problems of connecting with.	No	Findings	
13	We have the infrastructure, we have the people	No	Info	
14	One thing is because we're also not that deep, we like bandwagon effect.	Yes	Findings	One reason why its not in nigeria. We do things because others are doing it.