

# Retooling the Concept of Information Service Provision: Imperatives for Libraries in Developing Countries in Times of Pandemic

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#### ABSTRACT

The quest to adapt information services from the traditional library context to one that is digital for efficiency, relevance, and sustainability of the library profession in developing countries prompted the paper. From a comparative viewpoint, the competitiveness of two information provision models (traditional and digital—social media) was discussed, considering the mediating role of technology. The prospect and viability of the latter over and above the former as an efficient and responsive model of information service provision during and after pandemic were highlighted with the aid of statistics. The paper proposed that the identification of core library patrons, acceptance of the broken monopoly of the library as an information provider, the development of a variety of information services, implementing social media and making services audience and device-specific, the building of social media community, etc. as key strategies for transforming the surviving libraries into thriving ones. The paper concluded with some benefits accruing to libraries in less developed countries that are operating the traditional model if the proposed strategies are proactively implemented.

**Keywords:** Social Media; Social Media Tools; Traditional Library; Covid-19; Pandemic; Information; Service Provision

#### Introduction

There is a consensus among LIS professionals that service provision is the hallmark of the library profession; however, there are divergent methods of packaging and communicating service due to the emergence of ICT, its attendant proliferation, rate of diffusion across sectors, and the extent of digital citizenship among others. These factors have resulted in the development of various service provision models that have continued to assume more complex dimensions. Presently, communication (i.e., verbal, non-verbal, written, or visual) is greatly redundant if the essence is not to communicate or disseminate information. A more efficient way of achieving this is through the use of technology because information service provision is now a blend of technology, man, and data (Zazi, 2010). Whereas the term could mean the dissemination of processed or unprocessed information, a more comprehensive description would capture the channel of dissemination also. Consequently, information service provision is operationalized in this paper as the transmission and management of man's documented intellectual output by those trained to do so with the aid of relevant technology.

Despite the existing and potential benefits modern technology offers the LIS profession, critics are of the view that if the primary function of the library is information dissemination, the Internet has extinguished its usefulness. One of the technological tools strengthening this

argument in recent times is the Internet and social media. Their acceptance has continued to gain prominence among individuals and organizations seeking a place in the digital realm (Steinfield, Ellison, Lampe & Vitak, 2012). With the outbreak of Covid-19 and its variants, the popularity of social media as a veritable communication means of greater attention. For example, Pérez-Escoda, Jiménez-Narros, Perlado-Lamode-Espinosa and Pedrero-Esteban (2020) asserted, "As a consequence of the pandemic, social media is becoming the platform of choice for public opinions, perceptions, and attitudes towards various events or public health policies regarding Covid-19". Furthermore, social media analytics has been reported as an efficient technique for capturing the attitudes and perceptions of the public pandemic (Yigitcanlar, during the Kankanamge & Preston, 2020) and a catalyst for quality decision-making and risk behavior (Al-Dmour, Masa'deh, Salman, Abuhashesh, Al-Dmour, 2020).

Whereas evidence abounds that libraries in the developed economies leverage social media to widen their patron-base and remain relevant in the information provision business (Xie & Stevenson, 2014), the narrative contrast significantly in the less developed countries (Ziaie, 2013), where the argument about library usefulness appears valid. More than a decade ago, it was reported that the majority of African libraries are in real crisis with an unclear future (Ogunsola, 2011). This assertion was premised on the low rate of technology deployment by libraries in the region. According to the author, if nothing changes, technology will foster the death of traditional librarianship in

the region. Whether or not the emergence of Covid-19 and its restriction protocols initiated the fulfilment of this prediction due to the unresponsive nature of the libraries in times of restrictions on physical movement is not certain. However, this paper proposes that, among other factors. efficient deployment of relevant social media tools will remedy the image crisis confronting libraries in developing countries especially in times of a pandemic or emergencies that restrict physical movement.

#### **Justification**

The unresponsive nature and over-reliance on routine manual operations, the need eliminate/minimize physical visits to the library facility, and embrace a paradigm that promises 'anytime' and 'anywhere' access to a wider range of information and services (Bamgbade, resources Akintola, Agbenu, Ayeni,, Fagbami & Abubakar, 2015) are among the flaws inherent in the traditional library system. Thus, a more inclusive and adaptive information provision model that is responsive during and after emergencies/pandemics becomes expedient. The emergence proliferation of ICT brought with them a decline in preference for libraries and librarians both as sources of information and advocates of information researchers, respectively (Dickson & Holley, 2010). Earlier, it was reported that information users begin their search for information with search engines, with no reference to the library as a starting point (OCLC, 2006). An overwhelming preference for information disseminated through social media over other conventional platforms has also been observed (Howard, Huber, Carter & Moore, 2018). These empirical claims emanated from the U.S. (a more developed economies). This being the case, what then does the future hold for libraries in the less developed regions? What can be done to ensure libraries in the developing region brace up for relevance towards reclaiming their 'lost territories' and the confidence reposed in them as information providers? This is the crux of this paper.

# The Traditional Library Concept of Information Service Provision

The traditional library system is characterized by manual methods of processing physical records and services from the point of acquisition to dissemination and use. It emphasizes a centralized, physically assembled information stock where usage requires a physical visit to the library (Kaur, 2015). From the context of relevance, librarians in such environment are often quick to point out, in defense, the benefits that the traditional library system offers. It has been argued that there is a greater control mechanism in the traditional library system over what comes into the library than it is in the digital environment (O'Brien, 2018), where publishers reserved the right to add or withdraw titles from electronic resource packages without external input or consultation. It has been reported that about 57.5% of essential academic titles are available electronically (Rao, Tripathi & Kuma, 2016).

Earlier, it was submitted that despite the ongoing digitization efforts, the relevance of the traditional library system cannot be outlived because only an insignificant amount of what has been since published writing began available on the Internet (Remelts, 2005). technological Furthermore. no competence or IP address management and authentication/user ID setups are required for gaining access to resources and services in the traditional setting. Additionally, once resources acquired, they are owned forever in the traditional system. Other bottlenecks with associated the electronic like incompatibility environment software/hardware, licensing/legal issues, and publishers' business models (Walter, 2013) appear to favor traditional The librarianship. argument notwithstanding, the traditional library system is often criticized for several reasons.

The rigidity and unresponsive nature of the traditional library system during emergencies and unfavourable weather conditions confine patrons to physically accessible resources and services. During the first and secondwaves of the Covid-19, where many public academic and institutions experienced partial or total lockdown, the traditional system became moribund and inaccessible to patrons. If prior to the pandemic lending policies have been observed to pose restrictions to access to information resources and services (Abbas & Faiz, 2013) in the library, they become more of a concern during emergencies. Once collections are built and services developed in this system, it becomes the sole responsibility of patrons to take advantage of them — no deliberate efforts to induce use or increase patronage due to its lack of competitiveness is made by the system. The attention required in the preservation of highly combustible physical records and their vulnerability to deterioration and other forms of catastrophes is another concern of the system. Shelving arrangements, record-keeping, charging processes, organization of knowledge under this system are time-consuming and labour-intensive (Ashikuzzaman, 2016).

## The Social Media Concept of Information Service Provision

With the advent of technology, users of information have not only increased astronomically but their information needs and modes of satisfying them have also become elastic, dynamic, and complex. Although the emergence of technological innovations like social media created phenomenon, conscious deployment of the same technology offers significant Whereas this solutions. assertion reinforces why libraries in the developed economies continue to thrive and remain (despite the obvious encroachments into the library's statutory functions by allied disciplines), it also validates the continued survival of libraries in the developing regions in terms of decline in patronage, relevance and impact.

The emergence of social media, in addition to other factors, has transformed the library from being a 'repository of knowledge to a 'facilitator of communication and collaboration' (Bell, Dempsey & Fister, 2015), with

libraries becoming more of 'connections' of people, information, and technology 'collection' than of resources **Bainton** (Hielmcrone. Maiello. & Bonnet, 2012). It has been reported that digital technology transforms clients' habits (Lund, 2021). The author further found that organizations that transform their services digitally have clients who are six times more likely to patronize new products and services from their desired brand. With the use of blogs, libraries facilitate speedy interaction with patrons and timely dissemination of library news and providing web links to resources and services.

Wikipedia, Facebook, Twitter, YouTube, and other social networking sites have been identified as veritable platforms for academic activities like class projects/assignments/presentations, group discussion (Muruli & Gireesh, 2013), and marketing/publicizing library services. RSS aggregators are suitable for current awareness services and selective dissemination of information (Head & Eisenberg, 2010). As an informationenvironment (Krongvist-Berg, 2014) that helps to build enduring communities of patron, social media helps to minimize patrons' physical visits to the library facility due to its flexibility of engagement. The advantages/benefits notwithstanding, social media experience is evolving and challenges such as the authenticity of information, users' privacy, false identity, and lack of control mechanism (Izuagbe, Ifijeh, Izuagbe-Roland, Olawoyin & Ogiamien, 2019a) have been leveled against the platform.

Distribution of social media applications and their monthly active users

and their monthly active users			
S/N	Social Media	Monthly Active Users	
	Application		
1	Facebook		2.958
		billion	
2	YouTube		2514
		billion	
2	WhatsApp		2,000
	11	billion	
3	Instagram		2,000
	•	billion	
4	WeChat		1,309
		billion	
5	TikTok		1,051
		billion	
6	FB Messenger		931
		million	
7	Telegram		700
		million	
8	SnapChat		635
		million	
9	Twitter		556
		million	
10	Pinterest		445
		million	

Data Reportal (January 2023)

The figure presents data that lent credence to the growing popularity of media use. According DataReportal (2023), there are 4.76 billion (i.e. about 60 percent of the world population), active social media users. Of these figures, about 99 percent access social media using mobile devices, such as tablets or phones. Out of this group, about 78% exclusively access social media platforms from their mobile phones, while only an insignificant 1.32% visit their social networks using desktops (Dean, 2023). The distribution of social media applications and their monthly active users reveal that Facebook, YouTube, WhatsApp and, Instagram are the most utilized platforms, with Facebook topping the Furthermore. distribution (Table).

statistics indicate that 9 out of 10 Internet users use social media and a typical social media user has an account on more than 8 different social media platforms and spends an average of 2.5 hours on social media per day (DataReportal, 2021). From these data, are there opportunities that libraries can leverage? What percentage of these figures can the library harness for its advantage? Given these insights, the paper aims to explore potential opportunities for libraries by delving into questions such as the percentage of these figures that libraries can leverage for their advantage, and how library services can be adapted and made more accessible to a broader audience.

#### Strategies for retooling library services

Retooling and adapting library services involves the implementation of strategies to meet the evolving needs of users in the ever-evolving information landscape. Some of the strategies for retooling library services include:

# Recognizing the shift in information access

Librarians must realize that the monopoly of being the sole provider of information that the traditional library era enjoyed some decades ago has been disrupted. As at 2006, it was reported that the library was not mentioned as a starting point for students who seek information among the options listed (OCLC, 2006). Considering this report in 2006. information when and communication technology (ICT) was less advanced than today, librarians should expect that present-day patrons are even more adept at accessing information independently (without the assistant of a *middleman*) now than ever before. In the digital economy, clients are the ones in the driver's seat (Lund, 2021).

## **Identification and understanding** audience

Each library is established for a specific user community, as outlined in the collection development policies of libraries. Librarians should be guided by this framework to identify their core patrons, and understand their digital inclinations. Furthermore, they need to recognize that today's patrons have outgrown accessing physical collections and services, librarians therefore need to acknowledge their preferences in terms of what they want, how they want it, where, and how to use it (Izuagbe, Ibrahim. Ogiamien. Olawovin. Nwokeomaa, Ilo & Osayande, 2019b). Understanding the audience is pivotal for implementing user-centric design principles, that ensure a seamless and intuitive experience for patrons navigating digital platforms and services.

### Diversifying information services on social media

The contemporary information consumer of the twenty-first century diverse information services. Library social media platforms, highlighted by Igwe (2017), go beyond mere information provision, it cut across incorporating various engaging digital content across academic, socioeconomic, political, religious, and entertainment domains. To cater to diverse preferences, librarians must research patrons' information service provisions preferences and make accordingly. Creating awareness among patrons that their information needs are met fosters a sense of understanding and appreciation.

# Adapting services to audience and device-specific

Librarians should identify relevant information services and corresponding social media tools for effective communication with patrons. Determining the most utilized social media channels for specific information and adapting services accordingly is crucial. Statistics, indicate that in early 2020, 3.2 billion (94.1%) out of the 3.4 billion active users of social media accessed the medium using smartphones (Statusbrew, 2020). These figures have increased to 4.20 billion and 4.15 billion January (98.8%)in 2021 (DataReportal, 2021), respectively. This is an indication that mobile phone is the most utilized device for accessing information on social media (Dean. 2023). Libraries should therefore prioritize designing information services that are both audience and devicespecific. Developing library mobile apps, tailored to each user group, ensures onthe-go access to resources, catalogs, and services, placing the library and its services where the users are.

# **Building and sustaining social media** communities

Establishing a robust and enduring social media community showcases the library's relevance and fosters a sense of belonging among patrons. Librarians need to identify the most effective social media channels for community engagement and may design user-friendly apps to expedite access to resources and services. Actively promoting the inclusion of URLs to

social media websites resources on enhances coordination and communication, expanding the library's patron base and ensuring member loyalty. Additionally, the establishment of virtual reference services within the community enables users to seek information assistance and through online chat, email, or video calls.

#### Real-time management of social media platforms by technology savvy librarians

Fostering a social media community is not just about its creation but also about its continuous growth and resilience. To optimize all engagements on the library's social media platforms, individuals skilled in information management, technology, and social media should be assigned to oversee these platforms in real-time. responsibilities should encompass creating social media accounts for registered patrons, categorizing users into relevant groups for the purpose of disseminating group-specific information, establishing feedback mechanisms for consistent user satisfaction assessments, and employing data analytics to comprehend user behavior, preferences, and Furthermore, they should be saddled with the responsibility of conducting regular training sessions for library staff to their technological enhance skills, ensuring they can effectively assist patrons with digital resources and tools. This responsibility forms the foundation for informed decision-making regarding resource allocation and overall service satisfaction within the patron community.

#### Initiate a reciprocal engagement

Reciprocal followership on social media hinges on the value-based services provided. Active sharing of posts and updates on trending or pertinent issues, tailored to the demographic characteristics of users, ensures high real-time user engagement. libraries consistently assurance that deliver what patrons seek creates a connection with and loyalty to the library. A study by Howard et al. (2018) revealed that majority of students preferred seeing their libraries on popular platforms such as Facebook, Instagram, and Twitter. A similar position was shared from the Zambian context, where over 80 percent of respondents strongly endorsed the use of social media tools in the library (Chitumbo, 2015). This suggests an interest among respondents in being actively followed on these channels. Until this interest is confirmed, the act of initiating a follow may not be reciprocated.

# Benefits for libraries in the developing countries

The proposed strategies, if consciously implemented, have implications for libraries operating the traditional model in the following areas:

1. Consciously implementing these strategies has several implications and advantages, such as removing "traditional" label the libraries, addressing predictions about changing patron improving behaviours, professional image of libraries, positioning libraries strategically for broader outreach.

- 2. It has been predicted that about 90 percent of library patrons will source their information needs non-library-related from channels, and physical spaces will be re-designated for non-library functions (University Leadership However, Council. 2011). deliberate and proactive deployment of relevant social media tools has the potential to and negate counteract this projection.
- 3. From an academic perspective, the integration of social media is poised to enhance the professional image of academic libraries by facilitating interaction and strengthening liaison operations with departmental heads across institutions.
- 4. The ongoing discourse surrounding the relevance, potential social rejection, and the speculated decline of the library profession would lose significance. This transformation occurs as libraries become more competitive and responsive to patrons' information especially in times of emergencies or pandemics that restrict physical movement.
- 5. Libraries hitherto operating the traditional model would have been strategically position themselves to deliver information services directly to a broader audience through the deliberate marketing of information products and services. This

- approach signals an end to the longstanding practice of relying on patrons' physical presence for service transactions.
- 6. One of the contemporary challenges for researchers lie in the difficulty of navigating the landscape of scientific development and discourse, given the overwhelming volume of literature and information. Consequently, various scholarly communication platforms such as conferences, workshops, and seminars are now complemented by pertinent social media tools like LinkedIn. ResearchGate. Academia.edu (Persson Svenningsson, 2017), Almetric, Mendeley, Orcid, Google Scholar, among others. These platforms play a crucial role in helping researchers increase visibility and citations by reaching a broader audience with their research findings Noorden, 2014; Bik & Goldstein, 2013). Recognizing that citation is a key metric for measuring research impact, libraries could proactively establish or subscribe to relevant academic social media platforms to further promote academic and scholarly publications originating from their institutions. ultimately benefiting authors and contributing to the institutions' rankings.

#### Conclusion

The paper emphasizes the critical importance of retooling and adapting library services to meet the evolving needs of users in the dynamic information landscape. The identified strategies include recognizing transformative information shift in understanding the library's access, diversifying information audience. services on social media. adapting services to audience and device-specific needs, building and sustaining social media communities, implementing realtime management of social media and initiating reciprocal platforms, engagement. The acknowledgment of the diminishing monopoly over information provision highlights the necessity for libraries to adapt to patrons who increasingly access information independently in the digital era. The proposed strategies, if implemented consciously, offer various advantages, including removing the "traditional" countering predictions label. changing patron behaviours, enhancing the professional image of libraries, and strategically positioning them for broader outreach. Overall, these strategies enable libraries not only to adapt but also to thrive as dynamic and responsive institutions in the digital age.

#### References

- Abbas, A. & Faiz, A. (2013). Usefulness of digital and traditional libraries in higher education. *Int. J. Services Technology and Management*, 19(1/2/3), 149-163.
- Al-Dmour H, Masa'deh R, Salman A, Abuhashesh M, Al-Dmour R. (2020). Influence of social media platforms on public protection against the COVID-19 via the pandemic mediating effects of public health awareness and behavioral changes: integrated model. J Med Internet Res, 22: e19996.
- Ashikuzzaman, M. (2016). Traditional library. LIS BD Network. lisbdnet.com/traditional-library/
- Bamgbade, B.J., Akintola, B. A., Agbenu, D. O., Ayeni, C. O., Fagbami, O. O. & Abubakar, H. O. (2015). Comparative analysis and benefits of digital library over traditional library. *World Scientific News*, 24, 1-7
- Bell, S., Dempsey, L. & Fister, B. (2015). New Roles for the Road Ahead: Essays Commissioned for the ACRL's 75th Anniversary. Chicago: Association of College and Research Libraries.
- Chitumbo, E. M. M. (2015). Social Media Tools for Academic Library Services International Journal of Humanities and Social Science Invention, 4(9), 33-40

- DataReportal (2023). Digital 2023: Global overview report https://datareportal.com/reports/di gital-2023-global-overviewreport
- DataReportal (2021), Global social media stats. Retrieved from <a href="https://datareportal.com/social-mediausers#:~:text=Global%20social%20media%20Stats&text=Our%20latest%20data%20show%20that,of%20the%20total%20global%20population.">https://datareportal.com/social-mediausers#:~:text=Global%20social%20show%20cial%20show%20total%20show%20total%20global%20population.</a>
- Dean, B. (2023). Social network usage & growth statistics: How many people use social media in 2024? https://backlinko.com/social-media-users#social-media-usage-by-device
- Dickson, A., & Holley, R. P. (2010).

  Social networking in academic libraries: the possibilities and the concerns. School of Library and Information Science Facility Research Publications. http://digitalcommons.wayne.edu/slisfrp/33.
- Head, A. J., & Eisenberg, B. M. (2010). How today's college students use Wikipedia for course-related research. *First Monday, 15*(3). http://www.firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/viewArticle/2830.
- Hielmcrone, H., Maiello, R., Bainton, T. & Bonnet, V. (2012). E-publishing and the challenges for libraries: An information paper.

- European Bureau of Library, Information and Documentation Associations (EBLID).
- Howard, H., Huber, S., Carter, L., & Moore, E. (2018). Academic libraries on social media: Finding the students and the information they want. *Information Technology and Libraries*. <a href="https://doi.org/10.6017/ital.v37i1.10160">https://doi.org/10.6017/ital.v37i1.10160</a>.
- (2017). Social media Igwe, P. J. librarianship academic in libraries: optimizing trends for real-time engagement user through digital billboards. Ariadne: Web Magazine for Information Professionals, http://www.ariadne.ac.uk/issue/ 77/prince-jacon-igwe/
- Izuagbe, R, Ifijeh, G., Izuagbe-Roland, E. I., Olawoyin, O. R. Ogiamien, L. O. (2019a).of **Determinants** perceived usefulness of social media in university libraries: Subjective norm, image and voluntariness as indicators. The Journal of Academic Librarianship, 45, 394-405.
- Izuagbe, R., Ibrahim, N. A., Ogiamien, L. O., Olawoyin, O. Nwokeomaa, N. M., Ilo, P. I. & Osayande, O. (2019b). Effect of perceived ease of use on librarians' e-skills: Basis for library technology acceptance Library intention. and

- *Information Science Research*, 41, 100969.
- Kaur, H. (2015). Role of digital libraries in the present era: challenges and issues. In S. Thanuskodi (Ed), of Handbook Research on Digital **Tools** for Inventive Management Collection and Development in Modern DOI: 10.4018/978-1-Libraries. 4666-8178-1.ch006
- Kronqvist-Berg, M. (2014). Social media and public libraries: exploring information activities of library professionals and users. Åbo: Åbo Akademi University Press, Finland.
- Lund, J. (2021). How customer experience drives digital transformation. reteived from:

  <a href="https://www.superoffice.com/blog/digital-transformation/">https://www.superoffice.com/blog/digital-transformation/</a>
- Muruli, N., & Gireesh, K. T. K. (2013). Marketing of library services and products through social media: evaluation. National An Conference on Inspiring Library Services (NCILS-2013). 2013 Tumkur, Karanataka: Sree Siddhartha Pre University College (12-13 July 2013).
- O'Brien, M. (2018), 4 reasons printed textbooks are better than digital. Retrieved from https://gonextpage.com/2017/08/07/4-reasons-printed-textbooks-are-better-than-digital/

- OCLC. 2006. College students' perceptions of libraries and information resources: companion piece to perceptions of libraries and information resources. **OCLC** Online Computer Library Center, Inc. Dublin, Ohio USA.
- Ogunsola, L. A. (2011). The next step in librarianship: is the traditional library dead? *Library Philosophy and Practice (e-journal)*. 606. https://digitalcommons.unl.edu/libphilprac/606
- Persson, S. and Svenningsson, M. (2017). Librarians as advocates of social media for researchers. In Fallon, H. & Walton, W. (Eds.), Librarian as Communicator. Taylor & Francis Group.
- Pérez-Escoda A, Jiménez-Narros C, Perlado-Lamo-de-Espinosa M, Pedrero-Esteban LM. (2020) Social networks' engagement during the COVID-19 pandemic in Spain: health media vs. healthcare professionals. *Int J Environ Res Public Health*, 17: 5261.
- Rao, K. N., Tripathi, M. & Kuma, S. (2016). Cost of print and digital books: a comparative study. *The Journal of Academic Librarianship*, 42, 4, 445-452

- Statusbrew (2020). 100 social media statistics for businesses 2019. <a href="https://statusbrew.com/insights/social-media-statistics-2019/">https://statusbrew.com/insights/social-media-statistics-2019/</a>
- Steinfield, C., Ellison, N., Lampe, C., & Vitak, J. (2012). Online social network sites and the concept of social capital. *Frontiers in new media research*, 15, 115–131.
- University Leadership Council (2011).

  Redefining the academic library:
  managing the migration to digital
  information services. The
  Advisory Board Company,
  Washington, DC
- Walters, W. H. (2013). E-books in academic libraries: challenges for acquisition and collection management. *Portal: Libraries and the Academy*, 13(2), 187–211.
- Xie, I. & Stevenson, J. (2014). Social media application in digital libraries. *Online Information Review*, 38(4), 502-523
- Yigitcanlar T, Kankanamge N, Preston A, (2020). How can social media analytics assist authorities in pandemic-related policy decisions? Insights from Australian states and territories. *Health Inf Sci Syst*; 8: 37.
- Zazi, A. (2010). The information ontology. What is an information service?

infoserviceonto.wordpress.com/2 010/06/23/what-is-an-information-service/

Ziaie, P. (2013). Challenges and issues of ICT industry in developing countries based on a case study of the barriers and the potential solutions for ICT deployment in Iran. A paper presented at the International Conference on Computer Applications Technology (ICCAT), Sousse, 2013, pp. 1-6.