ADOPTION AND USE OF LIBRARY SERVICES PLATFORMS BY LIBRARIANS AT THE NATIONAL UNIVERSITY OF LESOTHO LIBRARY

by

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Abstract

The purpose of this study is to understand the factors that influenced the adoption and use of library services platforms (LSPs) at the National University of Lesotho (NUL) library named Thomas Mofolo (TM), using the conceptual framework developed from the three models of Davis (1989), Tripathi (2017) and Ajibade (2018). This combination of models formed the Integrated Technology Acceptance and Use Model (ITAUM), which underpinned this study. The findings revealed that IT skills and experience, supervisors support, IT use policy, rules and guidelines, perceived usefulness, vendor support and loyalty, cost, perceived ease of use, and perceived ubiquity were the factors that influenced TM librarians attitudes to actually adopt and use Sierra/FOLIO. This study used an interpretive paradigm and qualitative methods. The population sample used in this study had to adhere to the following criteria: main campus librarians of NUL, utilisation of Sierra/FOLIO, availability and willingness to participate in this study.

KEY TERMS: Thomas Mofolo library, cloud computing in libraries, library services platforms, cloud-based library systems, Web 4.0 technologies, FOLIO, library information systems, National University of Lesotho Library, Sierra, academic library systems

Declaration

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I certify that the aforementioned dissertation is my own original work and all sources used are acknowledged with full citations and references.

I further declare that the dissertation was checked for originality, that it complies with the acknowledged standards for originality, and that I did not employ any illegitimate assistance from any individual or organisation.

Likewise, I certify that I have not submitted my project, or any portions of it, for review at UNISA for a different degree or at any other higher learning institution.

[redacted]

23 August 2023

Signature Date

Dedication

First of all, I would like to thank my almighty God who has always provided me with wisdom, strength and perseverance.

I then dedicate this study to my late mother, Mahlauli Emely Hlauli. I also dedicate it to my granddaughter, Rethabile Sylvia Tsukulu, who is my pillar of strength; my sister, Dr Mabataung Violet Khati, and her husband, Prof. Thekiso Gladwin Khati, for their love, endless support and motivation.

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Above all, I give thanks to my heavenly Father for providing me with the confidence and strength to finish this project.

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List of abbreviations and acronyms

CATUS	Client Access, Training and User Support
E-resources	Electronic resources
ERM	Electronic Resource Management
FOLIO	The Future of Libraries is Open
IaaS	Infrastructure-as-a-Service
ICTs	Information and communication technologies
ILS	Integrated library system
IRM	Information resource management
ITAUM	Integrated Technology Acceptance Model
ITS	Integrated Tertiary System
LCE	Lesotho College of Education
LELICO	Lesotho Library Consortium
LIS	Library and information science
LSPs	Library services platforms
NUL	National University of Lesotho
OLF	Open Library Foundation
PaaS	Platform-as-a-Service
PEOU	Perceived ease of use
PU	Perceived usefulness
RDA	Resource description and access
SaaS	Software-as-a-Service
SADC	South African Development Community
SDG	Sustainable Development Goals
SOA	Service-Oriented Architecture
TAM	Technology Acceptance Model
TM	Thomas Mofolo
TRA	Theory of Reasoned Action
UN	United Nations
UNISA	University of South Africa

CHAPTER ONE: INTRODUCTION AND CONTEXT SETTING

1.1 Introduction

University libraries serve a wide range of users, including investigators, scientists, technologists, learners, and other individuals with a personal or professional interest in higher education. The goal and vision of academic libraries are evolving in developing countries as a result of advances in information and communication technology (ICT) (Thanuskodi 2013). That is, technological innovations have pushed academic libraries to modify their conventional services and procedures by implementing cutting-edge technologies in response to their clients' evolving information needs (Hamad, Al-Fadel & Shehata 2023). These clients are now more tech-savvy and like to obtain content quickly and from home (Hamad et al. 2023). Currently, South African academic libraries like UNISA Library, University of Pretoria, University of Cape Town Library, and others are among Library 4.0, leveraging the Web 4.0 technologies, as they have smart services, smart management, smart employees, smart patrons, and smart resources because they are using cloud-based platforms (Ocholla 1 & Ocholla 2 2020:363-364). African university libraries, including Lesotho as an African country, experience a lot of similar challenges, of which the majority are manageable because the management team, library employees, and the working conditions in the libraries are the ones that create such challenges rather than technological systems (Kotoroi 2023).

This study, therefore, examines the library services platforms of the National University of Lesotho (NUL) library, which were in use from 2016 to 2023. With respect to the evolving information landscape, libraries and other information organisations continue to advance in order to fulfil the demands of their user population (Hirsh 2022:1). As a result, academic libraries are migrating from their locally installed integrated library systems (ILS) to modern resource management platforms (Wong 2020:2). In line with this trend, the Thomas Mofolo (TM) Library Services of NUL has implemented the library services platform (LSP), and this study contributes to the understanding of the adoption and use of LSPs in academic libraries. The term 'library services platforms' was introduced by Marshal Breeding in August 2011 to denote products that enable libraries to perform their services internally and externally through built-in functionalities and to offer web services to their clients (Breeding 2015:6; Adegbilero-Iwary & Hamzat 2017:1).

Instead of requiring extra external services like a separate link resolver or electronic resource management (ERM) systems, LSPs are made to handle resources in a range of forms, and this contrasts with ILSs which were built to manage acquisitions and circulation of predominantly print materials (Wong 2020). Library system vendors had also recently started to invest in a new paradigm of cloud computing technologies to deliver library resources and services over the internet (Swaminathan 2020:97). These technologies enable libraries to access a robust collection of multi-format resources as cloud-based services (Islam, Islam, Anwar & Alan 2022). These systems enable libraries to virtually operate software applications hosted by third-party data centres that allow librarians to manage their collections, regardless of the format (Pool 2017:5). Libraries also strive to establish digital repositories and make them accessible on the internet by implementing digital content policies and determining the competencies of staff to safeguard the sustainability of online access (Polchow 2021:112).

One of the most controversial issues in organisations is the limited acceptance and use of emergent technologies (Tripathi 2017:125), yet automation has changed from installed systems to cloud computing services (Tyagi & Senthil 2015:408). Pradhan (2019:12) specifies that it is becoming increasingly difficult for librarians to keep up with the changing patterns and embrace emerging innovations in their line of work, as new concepts and technology are being introduced to simplify the operations of libraries. Furthermore, students are relying more on mobile devices such as laptops and cellphones to access information than depending on printed materials (Johnson, Becker, Adams, Estrada & Freeman 2015:10). Alma, Sierra and Worldshare Management Services are some examples of LSPs (Wang 2016; Breeding 2015:8). LSPs are cloud-based integrated systems that enable institutions to manage resources in a virtual and cost-effective environment (Shaw & De Sarkar 2019:18). LSPs have been designed to overcome the problems of infrastructure requirements, system maintenance and costs of backups in libraries (Shaw & De Sarkar 2019). Another advantage of these platforms is that they support web-based technologies, such as Web 2.0, Web 3.0 and Web 4.0 (Noh 2015).

Noh (2015:796) and Francesconi (2018:2) deliberate further on the evolution of the World Wide Web (WWW) as the hub for cloud-based service platforms, where systems interact to distribute open resources and services. The WWW is valued for its continuous evolution that addresses open access and complex information demands of users, starting from Web 1.0 going up to Web 5.0. Francesconi (2018:2) states that the web era dates back to 1990 (Web 1.0), which displayed a static document-oriented platform mainly comprising text, images and

hyperlinks, with inadequate user interaction. Web 2.0/collaborative web/media platform emerged around 2000. Through Web 2.0, library websites display social media links that enable them to interact, create and share content with users on platforms, such as Facebook, Twitter, Google+, YouTube, Wikipedia, Myspace, LinkedIn and Foursquare (Francesconi 2018:2).

In the context of libraries, academic libraries are experiencing a remarkable deterioration in students' visits, as libraries are no longer seen as physical structures that keep print/physical collection. Instead, most students are always on social media and online where librarians can meet their demands, regardless of their geographical areas (Ahenkorah-Marfo & Akussah 2016:559). Wells (2016:92-93) corroborates that, when combined with a more simplified back-end system, the new-generation library systems that allow users to discover content via a single interface have the advantage that they can streamline the delivery of electronic resources.

The third evolution is Web 3.0/Semantic/Smart Data Web, which makes it easier for both humans and computers to understand the content (Chigwada & Chisita 2021). This is where multiple servers share a common platform to interact, and create and share relevant content to users (Chigwada & Chisita 2021). Semantic Web provided smart data that paved the way for Web 4.0/Symbiotic Web, where independent systems and software agents seamlessly and simultaneously interact with each other and with the human mind. The most recent evolution of the WWW is Web 5.0/Emotional Web, which enables humans to communicate their emotions/feelings to computers, which, in return, use their intelligence to perceive and describe such emotions (Francesconi 2018). However, it is unclear whether Web 6.0 will develop into a single artificially intelligent creation or whether it will be a collection of other identities with the distinct characteristics of other networked objects, but the future will be different from what we know now (Krol 2020:33).

In this study, the Thomas Mofolo (TM) Library Services of the National University of Lesotho provided the context for understanding the experiences of library staff in LSPs. As a committee member of the Lesotho Library Consortium (LELICO), the researcher had the personal information that the TM Library was changing its library management system for a third time in six years. Over these six years, TM Library used a donated system called Integrated Tertiary System (ITS) and, thereafter, they installed Millennium System, which was the predecessor of the Sierra library platform. None of these TM Library systems had ever been tested for performance. As such, the researcher felt it necessary to assess TM librarians' perceptions

towards the performance of Sierra because the researcher intended to give insights that would help these librarians to embrace and successfully adapt to the new Sierra system.

Furthermore, other libraries of Lesotho higher learning institutions were using locally installed systems of their choice: Lesotho College of Education installed Inmagic Genie from Mindex, while Lerotholi Polytechnic Library was using LibWin. In Lesotho, where inter-library lending was not practical, this decentralisation of libraries impeded the sharing of resources, calling for a holistic adoption of LSPs to enable the ubiquitous access to resources. However, limited expertise in areas of ICT and interest among professional librarians to embark on new technological advancements, technophobia, the complexity of new technology applications, resistance to change, inadequate staffing, system failure and power outages (Kari & Baro 2014:16; Kumar 2017a:453) prompted the researcher to explore how TM librarians were coping with the new Sierra.

TM Library might as well experience similar challenges in accepting and using its newly implemented Sierra; hence, there is a need to conduct a thorough and in-depth systematic inquiry of perceptions of librarians towards the new Sierra platform at TM Library Services. This study will share with the local libraries, that intend to implement LSPs to have a common pool of resources, the lessons from the TM Library in their implementation of the Sierra LSP. Furthermore, due to global companies' intensive use of cloud computing services, there was a need to explore the perceptions of information professionals towards the adoption of cloud computing (Aharony 2015:309), which prompted this study to seek the perceptions of TM librarians of their experience with Sierra LSP. This investigation would close the gap for further research into the adoption and continued use of LSPs in the consortium of libraries of Lesotho.

According to Tseole (2020), TM Library has already implemented the Sierra library management system. Based on the researcher's knowledge, as a committee member of the Lesotho Library Consortium (LELICO), Sierra was implemented on 2 April 2019. Later on, for ubiquitous access, TM librarians decided to house part of the library holdings on Sierra's cloud platform (Tseole 2020:245). Sierra LSP is a product of Innovative Interface (Grant 2012:5) that supports open data structure, integrated workflow, mobile technologies and discovery services, while also promoting collaboration and sharing (Breeding 2018:24; Innovative Interfaces 2018). According to Wilson (2012:111), "Sierra is available through a variety of licensing packages, including both subscription and purchase arrangements."

However, based on the researcher's latest discovery, on 31 January 2023, TM Library migrated its records (yet again) from Sierra LSP to FOLIO open source library services platform (LSP) because Sierra LSP is getting expensive. As described by the FOLIO project owner (Liu 2021:40), FOLIO stands for Future of Libraries is Open. The FOLIO platform is being developed by the FOLIO partnerships of system suppliers, developers and libraries, and it may be integrated with more institutional systems and provide standard resource management functions (Liu 2021). What distinguishes open source platforms, such as FOLIO, Koha and Evergreen is that these three are open source (free) library services platforms, while the rest are proprietary platforms (Enis 2022). Whenever a library needs to add a new feature to these open systems, the librarians can construct an open source platform for themselves, hire a developer to design it for them or share funding with other libraries to finance the construction because open source code is accessible free of charge and can be amended (Enis 2022:41).

Due to increased numbers of student enrolment in both part-time and full-time programmes and a need for effective delivery of information services and resources compelled TM Library to set up branch libraries and mobile library services for students in remote areas. Subsequently, TM Library established four branch libraries that were located in Maseru, Mahobong, Mohaleshoek and Thaba-Tseka (National University of Lesotho Calendar 2017:30).

Towards the end of 2013, TM Library acquired client-server automation software called Millennium (Motsoeli 2014). TM librarians started training on it in February 2014 and the Millennium system was implemented in October of the same year. Millennium is a predecessor of Sierra, developed from INNOPAC by Innovative Interfaces (Innovative Interfaces 2018). The implementation of Millennium came after the unsuccessful automation of the ITS that TM Library received as a donation from the Dutch (Taole & Dick 2009; Motsoeli 2014). The intention was to have a library system that would enhance the management of their multi-format collection, collaboration and resource sharing among university libraries, as well as to enrich support for learning, teaching and research (Motsoeli 2014).

However, this was not possible with the Millennium system. As a locally installed web-based system that was developed to automate the acquisition, cataloguing, circulation, online public access catalogue (OPAC) and management of serials, Millennium failed to enhance the management of the multi-format collection, collaboration and resource sharing among the NUL libraries, and to enrich support for learning, teaching and research. This is because Millennium

is not cloud based and does not support Web 4.0 technologies, where the third party maintains hardware, software and data that are stored on the cloud and provided in SaaS format.

While Millennium requires the installation of hardware and software, the involvement of IT personnel, systems librarians, software upgrades and backups, the Sierra LSP has the following advantages: (i) it offers services that enable the library to manage both print and electronic resources in all formats; (ii) vendors virtually provide and host LSPs as services, freeing librarians of the tedious responsibility to maintain the installed system and infrastructure; (iii) it provides access to a massive collection of online resources by suggesting an appropriate web-based system for TM Library; (iv) it provides new skills for librarians; and (v) the multi-tenancy nature of the web-based systems provides access to global knowledge (Sinley & Snatches 2016; Yuvaraj 2016; Kumar, 2017a:81; Kumar 2017b). Breeding (2018) corroborates this, together with the initiative to move from traditional locally installed integrated systems such as Millennium to an LSP for the efficient management of library collections in all formats.

1.2 Problem statement

The mission statement of TM Library states that its goal is to become a leading library and information service provider on the African continent, while also emphasizing its commitment to being a vital steward of knowledge management, creation, and application for progressive human development (National University of Lesotho Libraries 2024). By so doing, TM fulfilled the university's mission as a centre of excellence for learning, teaching, and research, and pledged to offer an innovative information service to its clients (National…2024). It also implemented Sierra/FOLIO LSP, hoping for an effective platform that would allow for collaboration and sharing of information resources after the predecessors of these platforms failed to integrate with other systems due to their lack of discovery capabilities, as installed systems (Motsoeli 2014). Shaw and De Sarkar (2019:29) maintain that cloud-based library systems offer enhanced management of resources over the internet, augmented agility and scalability of resources with less or no use of hardware, improved exhibition of content, universal databases and support for compliant cataloguing in a lucrative manner.

However, TM has a history of changing system within a short time, and even migrated from one Sierra LSP to FOLIO LSP between the year 2016 and 2023. Based on this scenario and other appalling facts gathered from the previous section, it is not convincing that TM Library's readiness for a well-established IT infrastructure would lead to the successful implementation

of the newly implemented FOLIO LSP. Although it is a common knowledge that social, economic, and mostly technological factors impacted library services, some librarians can be opposed to change, while the majority of them appreciate and are open to change. Change can also bring emotional behaviour, and job insecurities (Waterhouse & Mann 2021; Mashroofa 2022). Specifically, TM faced the following challenges that may affect the successful adoption and continued use of FOLIO LSP: limited bandwidth, a lack of advanced IT infrastructure, a lack of searching skills and budget cuts (Sejane 2017:vi), while Yakubu, Kassim & Husin (2023) corroborate that regardless of the LSPs' significant applications, libraries in African universities are still reluctant to adopt cloud-bases systems. Furthermore, institutions experience challenges every time new innovations and guidelines are prompted, resulting in resistance to the adoption of new technologies (Jayaprakash & Balasubramani, as cited in Boateng, Agyemang & Dzandu 2014:6; Tripathi 2017:126). Failure to address these problems may impede timely delivery of library resources, and lead to resistance to change, as well as unsuccessful implementation of systems at TM. It may also result into unnecessary costs for TM Library. As Mathar, Marwansyah and Ardinata (2020) confirmed, shifting from one system to another, needs qualified staff, time, money, and other resources. Therefore, this study provides possible strategies that might help TM librarians to cope with this situation in order to fulfil the academic demands of students and faculty. The insights from this study will be a revelation to Lesotho libraries that are willing to change from locally installed systems to LSPs. Lastly, this study will contribute to research on the adoption of advanced library automation. Hence a need for a study that investigates the level of adoption and use of the FOLIO Platform by TM librarians. This will help the study to come up with suggestions for the successful adoption and use of FOLIO. The world is going virtual, and libraries are not left behind. That is libraries are implementing Web 4.0 technologies, such as innovative FOLIO with discovery services (Breeding 2017; Krol 2020), and there is a need to document the performance of such platforms from the library perspective.

1.3 Purpose

The purpose of this study was to understand the factors that influenced the adoption and use of the library services platforms at the Thomas Mofolo Library Services at the National University of Lesotho since 2016 to 2023, with the aim of proposing guidelines for the successful adoption and continued use of similar platforms.

1.4 Objectives and research questions

The key objective of this study was to understand the factors that influenced the adoption and use of LSPs by TM librarians for suggesting a blueprint for acceptance and continued use of FOLIO LSP at TM Library. In order to achieve this, this study sought influential factors of the successful adoption and continued use of the LSP selected TM Library using Integrated Technology Acceptance Model (ITAUM).

Based on the purpose of this study, Table 1 presents the study objectives and study questions to assess the predictors of the successful adoption and continued use of Sierra/FOLIO LSP at TM Library. Maxwell (2013:83) and Schwandt (2015:256-257) posit that qualitative research presents non-numeric data in words and follows process-oriented questions, such as the "what", "how" and "why" questions that seek to understand human behaviour, actions or events. Based on ITAUM, the objectives of this study were based on factors such as IT skills and experience of staff; supervisors' support; institutional IT use policy, rules and guidelines; perceived usefulness; ubiquity and attitude of librarians to predict the level of acceptance and use of Sierra/FOLIO LSP at TM Library.

Table 1: Objectives and research questions

Objectives	Questions
To assess the extent to which TM librarians have adopted the library services platforms since 2016 to January 2023 when they implemented FOLIO	To what extent have TM librarians adopted and used the library services platform from 2016 to 2023 when they migrated to FOLIO LSP?
To discover the factors that have influenced the adoption of FOLIO LSP by TM librarians	What are the factors that have influenced the adoption of FOLIO LSP by TM librarians?
To recommend a guideline for the successful adoption and continued use of LSP at TM	What are the possible recommendations for the successful adoption and continued use of LSP at TM?

1.5 Importance and justification of study

This researcher is not aware of studies on TM Library regarding the performance of the implemented Sierra LSP/FOLIO and its predecessor Millennium, giving this researcher the opportunity to close the knowledge gap by seeking to understand the factors that led to the adoption and continued use of the Sierra/FOLIO LSP. That is, this researcher is not aware of the documented performance of LSPs at TM library services. In view of this, this study attempted to close the existing gap by understanding the factors that moderate the adoption and use of Sierra/FOLIO at TM. The study findings will benefit the TM library and other libraries, as they will be able to identify appropriate LSPs to manage their collection, and deliver timely services. Among others, these LSPs can be used to concurrently automate repository/archival records and library operations. This will curb the challenge of the digital divide, as librarians and users will engage and collaborate on the LSPs. This study will also contribute to the research into the adoption and use of LSP in academic libraries.

TM Library was selected as the research site because it is the only university library in Lesotho. TM Library is the only academic library that has taken the lead in keeping up with technological trends, as it used Millennium, Sierra LSP and has now gone live with FOLIO LSP. Moreover, the results of this study may help TM librarians to successfully adopt FOLIO and manage e-resources better on this platform. Furthermore, it was important to complement the implementation of LSP at the TM Library and explore the librarians' attitudes towards the adoption of this LSP. The results from this study would equip librarians with insights into the requirements and application of cloud computing in academic libraries.

This study explored the attitudes of TM librarians towards the adoption and continued use of Sierra/FOLIO LSP in order to share useful insights about the successful adoption of this LSP. Failure of TM librarians to take advantage of this study and adopt FOLIO may impede the infinite delivery of quality resources and services to readers. Collaboration and resource sharing could also be impossible if the consortium of Lesotho libraries continues to use their proprietary automation systems. Enis (2017:30) indicates that proprietary and locally installed library systems have some disadvantages, which include: they are expensive, they are difficult to use and vendors are not always available when librarians need to make changes, they were designed for the management of a print collection and they depend on vendors for the ongoing revamping of the software and other services. This proprietary software was also loaded with various functionalities for libraries, which was the reason for their complexity. Furthermore,

synchronising different systems for the management, discovery and access to e-resources was difficult for most librarians (Day & Ou 2017). Those challenges of proprietary software frustrated academic librarians and forced them to migrate from one proprietary software to another (Gallagher 2016). According to Kumar (2017:85), the current and forthcoming LSPs have the potential to bring workload relief to academic librarians, as well as increased access to a robust print, electronic and digital collections in all formats.

With reference to the study objectives, the outcome of this study could assist TM librarians and persuade them to learn from their experience, as documented in this study. The study findings would further help TM librarians to keep strengthening their IT skills in order to meet the preferences of the TM Library community. The Lesotho libraries would be able to use detailed descriptions, applicability, and usefulness of LSPs. This study may also help Lesotho, to attain more of the 17 United Nations Sustainable Development Goals (SDGs) of Agenda 2030, but this study focused on SDG 2: food security and nutrition because Lesotho is one of the poor African countries. Secondly, the government of Lesotho prioritised to use ICTs to promote food security (NSDP II 2023). Thirdly, TM is now the leading ICT-oriented library that supports this government's plan with the implementation of ubiquitous systems to deliver information services. This is because the key components that enable economic change are ICT, transportation, energy, water, and environment (NSDP 2023).

Based on Agenda 2030 and the worldwide trends, Lesotho aims to achieve SDG 2: Put an end to hunger, ensure food security and better nutrition, and advance equitable farming practices by rapidly embracing and expanding the usage of the Web and the Internet of Things (IoT) to digitise agriculture and agro-processing using agricultural technology apps, hence improving productivity, production, capability, and security throughout industries (National Strategic Development Plan II 2024:14). As a result, country populations' access to farming extension services, research, and higher education is under strain because of the agriculture sector's actual need for sustainable growth (Shebu, Gaanda, Abdullahi 2023:31) . In light of this, libraries are set up to support agricultural research, teaching, and training at agricultural universities, colleges, institutes, the Ministry of Agriculture, and other organizations (Shebu, Gaanda, Abdullahi 2023:31).

Noting this requirements of Agenda 2030, and the benefits of LSPs shared in Chapter 2, the implementation of LSPs, can promote collaboration and sharing of agricultural information and resources in Lesotho and other SADC countries. LSPs are also valued for pooling

resources, meaning TM can access agricultural resources in the virtual space and share them among the consortium libraries. This is also the preeminent objective stated in the mission statement of TM in Section 1.2. That is, information is essential for accomplishing these SDGs, and cloud computing technologies, such as LSPs can help libraries disseminate information on each goal of Agenda 2023, which involves improving agriculture, encouraging reading, ending poverty injustice, offering top-notch education, and bolstering human health, culture, research and creativity (United Nations 2020). The Lesotho libraries also support SDG: 2 by digitising agricultural content and making it accessible on the institutional repository pinned on their library wet sites or integrating the repository with the LSPs. Dada and Mohammed (2025) confirm that llibraries are essential repositories of information available in diverse forms and types, meaning researchers can access resources and information on an array of subjects, including agricultural subject areas.

1.6 Delimitations and limitations of the study

This study aimed to explore the adoption and use of LSPs by librarians at TM Library of the NUL. Therefore, this study was limited to the TM Main Library, which was the main campus library of the NUL, situated in the Maseru district. For comprehensive results, the study could have included the Thomas Mofolo branch libraries that were located in Maseru, Mahobong, Thaba-Tseka and Mohaleshoek. While this study focused on the sections of the TM Library that used Sierra/FOLIO, it did not include archival and documentation services even though they were provided by the library, because archives section used DSpace to digitise the records, while the documentation centre used CDSISIS to manage grey literature. The population also decreased, as some of the librarians were promoted to higher ranks where they no longer dealt with Sierra/FOLIO. Furthermore, some were transferred to branch libraries, while others were on study leave. Therefore, this researcher interviewed librarians who were using Sierra/FOLIO were available and knowledgeable about it. That is, out of 28 librarians assumed to be part of this study, this researcher could not interview 15 librarians who were supposed to be using Sierra/FOLIO LSP, but could not participate in this study. In this case, the findings do not reflect the opinions of all librarians in TM library, as each section has its own rules and challenges.

The COVID-19 pandemic had a profound impact on libraries and information services, hastening automation and digitization in numerous organizations to put libraries at the fingertips of users during the epidemic (Abangan, Cansancio, Gadia, Jorillo, Reyes & Pamat

2024:71). Similarly, the NUL community and TM Library services adopted an innovative teaching style due to the switch to online learning, compelling the delivery of library services to change from in-person assistance to virtual delivery of services (Mbambo-Thata 2020:36). That is, TM librarians pointed out that simply having access to the digital materials of the TM Library online was insufficient, and they aimed to put more creative methods in place to help the NUL faculty, students, and researchers more successfully (Mbambo-Thata 2020).

However, this pandemic affected parts of this study, as the study started in 2018, and it erupted between 2019 and 2020. This study could not cover Thomas Mofolo branch libraries due to geographical distance, COVID-19 restrictions, limited time to complete this study and financial constraints. This study also excluded the library users and faculty, as it covered only the views of TM librarians who were using LSPs. Since part of this study was done during the global COVID-19 between 2019 and 2021, restrictions that would have compelled this study to use other means of collecting qualitative data, such as Teams, Zoom, Skype or telephonic interviews rather than face-to-face interviews. Hennink, Hutter and Bailey (2020) affirm that qualitative researchers can interview participants virtually through telephone interviews, video conferencing, face-to-face interviews or focus group interviews. Telephonic interviews would have some effects on the quality of data, as institutions were closed and staff were working from home. This situation would have limited the chances of meeting the interviewees or accessing the research site. Fortunately, COVID-19 subsided and restrictions were relaxed, allowing this study to continue with face-to-face interviews with TM librarians.

1.7 Definition of key words

1.7.1 Cloud computing

Cloud means ‘cloud’ as internet and ‘computing’ as computer technology (Tyagi & Senthil 2015:409). Cloud computing is a network-based, ubiquitous and service-oriented technology meant for the provision of infrastructure as a service (IaaS), platform as a service (PaaS) and software as a service (SaaS) (Wada 2018:17). In the context of this study, cloud computing is a library application hosted by a third party on a virtual server that is accessible over the internet (Tyagi & Senthil 2015). Cloud computing makes it possible for librarians to share resources and services on the internet and not on locally installed servers (Kaushik & Kumar 2013:270).

The key features of cloud computing include speed, ubiquity, multi-tenancy, reliability, self-maintenance and flexibility (Kumar 2017:82).

1.7.2 Infrastructure-as-a-service

IaaS is a pay-per-use model offered by vendors to provide on-demand services like virtual servers/computers, storage, databases and management computing capabilities (Sharma 2016:3). It is a virtual infrastructure (e.g. processors, storage and network) that systems vendors offer libraries on a subscription basis (Kumar 2017:83).

1.7.3 Institutional IT use policy

Institutional IT use policy is the company laws or rules and guidelines that shape the employees' compliance behaviour towards the use of technology systems (Ajibade 2018).

1.7.4 IT skills and experience

In the context of this study, IT skills and experience mean staff expertise in information technology and practice that enhance usability of technology applications (Ajibade 2018).

1.7.5 Library services platform

In 2011, Marshall Breeding used this term to specify a type of emerging technology application with built-in features and customised web services provided online and as a service to libraries for enhanced access to electronic and digital resources, collaboration and sharing (Grant 2012:5; Waterhouse 2018:4). It is a cloud-based library solution that has been developed to make libraries more effective by integrating multiple workflows into one virtual integration. LSP is a SaaS platform that uses cloud computing, web applications and innovation services to handle print, digital and online resources (Breeding 2011; Pradhan 2019:18).

1.7.6 Multi-tenant software

This is a common SaaS where different library content/resources and applications are kept in a segregated way to avoid the relocation of content from one information centre to another (Tyagi & Senthil 2015:410). Each client/library is a tenant with its own set of policies on acquisitions and circulation, which are configurable to meet the demands of the library (Tyagi & Senthil 2015).

1.7.7 Perceived ease of use

This is the extent to which someone perceives a technology system to be simple to use or user-friendly (Davis 1989:320).

1.7.8 Perceived ubiquity

In the context of this study, Sierra/FOLIO was provided on a SaaS platform, which proved that they were real ubiquitous systems that TM librarians accessed over the internet and wireless networks (Wi-Fi)). Ubiquity means extended user reach or the degree to which library users can access resources anywhere and at any time, overcoming the challenges of time, geographical location and many other service delivery constraints (Kumar 2021:5).

1.7.9 Perceived usefulness

It is an individual perception that using a technology system will be beneficial and enhance job performance (Tripathi 2017).

1.7.10 Perception

Perception is a thought, belief, assumption or opinion of how things seem to be (Cavieres & López-Silva 2022).

1.7.11 Platform-as-a-services

Platform-as-a-service (PaaS) is a computing space/platform where cloud vendors provide web servers, operating systems, databases and the execution of programming language to libraries on a rental basis. Examples of PaaS are Amazon, Google, Force.com and Microsoft Azure (Aharony 2015; Kumar 2017:83; Sharma 2017).

1.7.12 Resource description and access

A resource description and access is a library cataloguing tool that Spry, Hayes, Ross, Brockman, Nowell and Vandervlugt (2023:5) describe as an authoritative procedure for comprehensive cataloguing that offers guidelines, and specifications for creating information about the resource, name and title link/location for the utilisation of such an information source built around the functional requirements for bibliographic resources (FRBR) and functional resources for authority data (FRAD). RDA, which was developed from AACR2 and replaced

AACR2, is a more extensive framework that allows for the description of new forms of library collection (Spry et al. 2023)

1.7.13 Scalability

Scalability is the capability of a cloud computing application to simultaneously and flexibly keep up with the demands of the tenants/clients (which may go up or down) while also maintaining the fulfilment of offering the same quality service to multiple tenants (Tyagi & Senthil 2015:409-410).

1.7.14 Software-as-a-service

Software-as-a-Service (SaaS) is one of the cloud computing service models is offered as a commercial service to libraries over internet-connected devices (Kumar 2017b:82).

1.8 Methodology

All research is centred on the philosophical assumptions about what creates valid knowledge and which research methods are suitable for the creation of knowledge in a given study. This section therefore deliberates on the philosophical assumptions and design strategies behind this study. Moreover, it discusses the population, data collection tools and data analysis methods for this study. Due to the nature of this study, the interpretive paradigm was a suitable framework for this study. The research design that was appropriate for the framework of this study was an interpretive/constructivist paradigm which was analysed through qualitative methods. Within this qualitative approach, this study engaged a case study research design.

This study primarily aimed to elicit participants' thoughts and views about LSPs that are used to enhance the management of TM resources and workflow (Hennink et al. 2020) and was an exploratory study based on the theoretical assumption of the interpretive paradigm and a case study design (Creswell 2018). The study was conducted by this researcher at TM Library, using interviews and document analysis as qualitative data collection methods. The interviews were informed by an interview guide, which was based on the conceptual framework of ITAUM. Maxwell (2013:2-3) confirms that the qualitative approach is flexible and inductive. Creswell (2018:19) concurs that if a concept or a case needs to be explored and understood due to inadequate research that had been taken or the sample that had not been investigated enough, it qualifies for a qualitative case study approach. To attain validity, this study triangulated face-

to-face interviews with document analysis as sources of data. Purposive sampling was used to choose the participants, while the thematic analysis method was applied to interview feedback.

1.8.1 Literature review

Based on the above explanations, this study accessed literature sources from local and international sources. Primary data were sourced from interviews, while secondary data were gathered from reviewed literature on automation in academic libraries, library services platforms, cloud-based library systems, cloud computing benefits and challenges in libraries, competences of the new era librarians, technology acceptance models for new technologies and research methodologies, including theoretical/conceptual frameworks.

1.8.2 Population

Population is defined as a whole group of prospective participants from which the investigator requires information and picks the sample (Neuman 2014:247). Since LSPs are designed to cover all the functions of the libraries, such as Acquisitions, Cataloguing, Circulation, Repositories/Archives, Resource Management and Serials (Pradhan 2019:18), the population for this study included TM librarians dealing with acquisitions, cataloguing, circulation, e-resources and serials. This population might be able to give useful information about the skills and experience they possessed, the usefulness and the level of accessibility/ubiquity of the Sierra platform.

1.8.3 Sampling techniques

In social science research, qualitative and quantitative inquiries allow researchers to pick only the sample of individuals from the entire population (Hennink et al. 2020:92). The only difference is the approach of sampling, as each one is directed by a research paradigm: quantitative uses non-probability sampling, while qualitative follows purposive, snowball sampling or census (Hennink et al. 2020). However, choosing a qualitative sample size is challenging, as qualitative inquiries naturally deal with a small sample that is purposefully selected to gain different views because the emphasis is on the richness of data, instead of the number of participants (Hennink et al. 2020:108), meaning it is pointless to pick a huge sample size, as it will not meet the objective of qualitative research (Hennink et al. 2020).

In this regard, the study used purposive sampling in a sample of 24 librarians of which 13 were interviewed. The TM Library sections/units included the university librarians and systems

librarians who may have had much information because they were involved in the decision making for implementing library systems, and they may have possessed different levels of knowledge about the performance of the Sierra platform. These heads of sections managed the two main sections, which were Information Resource Management (IRM) and Client Access, Training and User Support (CATUS). IRM dealt with acquisition, cataloguing, IR (archives) and documentation of library materials, while CATUS involved reference and user services. Therefore, this study used purposive sampling to purposively probe management and all TM librarians. The reduction of the population was due to the fact that some of the librarians were on study leave. Other librarians were transferred to branch libraries and archival section, while others were promoted to higher ranks. Two sections were also combined and managed by one librarian.

1.8.4 Data collection method

The researcher made use of the qualitative method through a case study design. As an aspect of identity, a case study can offer tools to explore perspectives of the social phenomena in some of the contexts in which they live (Schwandt 2015:96-97). The data were gathered through interviews and document analysis. The data collection tools that were used included field notes, an interview guide and telephonic interviews for follow-up questions to solicit different views from TM librarians, as well as reflexive/pilot interviews as a strategy to distribute information and create awareness in this research (Mackey & Gass 2015:22). Interviews were held with TM librarians relating to their occupation, qualifications and skills as they regularly used Sierra LSP.

1.8.5 Data analysis and interpretation

Data analysis is the procedure of generating meaning from data, interpreting data and theorising on it. It begins with organising, reducing and describing data and goes on to draw conclusions/interpretations from data and explain such interpretations (Schwandt 2015:57). Since the qualitative analysis of data was interpretive (Hennink et al. 2020:17), this analytical framework included the interpretation of structural, individual scopes and inferences of the interview output. Given that this study was largely interpretive in nature and committed to soliciting perceptions of TM librarians with regard to their experience with Sierra LSP, the data analysis took an open and insightful commitment with current works to allow for the occurrence of perceptions of participants rather than a hypothesis/theory-testing approach. The

researcher aimed to present an explanation of personal behaviour and applied progressions involved in changing to the Sierra LSP at the TM Library through thematic data analysis.

1.8.6 Ethical considerations

This researcher acted ethically throughout this study by being compliant with UNISA's research policies, regulations, guidelines, referencing style, qualitative case study methodologies and research ethics. In the first occurrence, all participants were approached with respect and politeness. A strategy of informed consent was used and the purpose and procedures of the investigation were articulated to participants. The privacy and anonymity of individual participant were guaranteed and agreement was sought for the face-to-face interviews to be documented. Finally, the participants were informed that an account detailing the outcomes of the study would be communicated to them.

Hennink et al. (2020:78-79) suggest that researchers must ensure that participants have sufficient information about them and the purpose of the study. Usually, the interviews are recorded and transcribed into a transcript. Therefore, this researcher explained to the participants why the recording was necessary and told them who would listen to it or read the transcripts.

1.9 Chapter outline

This study is structured into six chapters:

Chapter 1 focuses on the introduction and background of this study. It also outlines the statement of the problem, the purpose of the study, research objectives and questions, research scope, importance and justification for the study, delimitations and limitations of this study, the definition of terms, and synopsis of the research methodology.

Chapter 2 covers the theoretical framework that guided this study and ITAUM constructs as determinants for successful acceptance and continued use of Sierra LSP at TM library: IT skills, usefulness, ease of use and level of ubiquity of Sierra/FOLIO LSP. The study objectives guided the literature review, which, in turn, provided the concepts of technology acceptance in the context of libraries, factors that influence adoption of new technology in libraries, IT skills as a requisite for the successful adoption and continued use of new technology in libraries.

Chapter 3 discusses the theoretical underpinning of this study. It presents a conceptual framework and constructs that predicts the level of LSP adoption at TM Library.

Chapter 4 provides a comprehensive research methodology, which includes the qualitative approach for this study. It discusses the case study design, interpretive methodology and design for this study, the population of this study for data collection purposes, data analysis tools and ethical considerations.

Chapter 5 engages in the presentation, analysis and interpretation of data collected from interviews. It also outlines the discoveries of this study, while reviewed literature supported the researcher to analyse the results of this study. The chapter presents the actual findings that emanated from the data collected from TM librarians on their experience with LSP.

Chapter 6 deliberates the outcomes of this study and provides insights into the meaning of data obtained in chapter four.

Chapter 7 gives the summary, conclusions and recommendations. It also provides detailed research findings, a comprehensive conclusion that outlines the research output as well as challenges and recommendations, which include suggestions for further research. Lastly, this study gives a reference list and appendices at the end.

1.10 Summary of the chapter

The focus of this study was to explore the perceptions of TM librarians towards the adoption of the Sierra LSP. The research problem, coupled with preliminary literature, made it necessary to explore the perceptions of TM librarians towards the adoption of their newly implemented Sierra platform. The purpose, objectives, questions, importance, delimitations and limitations of this study were provided in this chapter. An overview of how data were gathered and analysed, ethical considerations, as well as chapter outlines were also provided. This chapter is followed by chapter two, which is a preliminary literature review that entails a theoretical framework.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Chapter one introduced the study problem and outlined the intention of this study. It described the study type, as well as the methods and strategies used to address the problem. The chapter also discussed other research related to the subject of this study, including cloud computing applications in libraries, ITAUM as a framework for determining the adoption and continued use of LSPs and constructs related to the impact and effect of the attitudes of staff towards the implementation and use of LSPs.

The literature review and the theoretical framework strengthened this study by enabling the researcher to articulate and produce new insights into the context of existing knowledge (Creswell 2018; Ngulube 2018). Reviews engage the researcher's effort to analyse and synthesise previous research to show collective relevance for addressing the study problem, obtaining insights and demonstrating relationships (Schwandt 2015:274). Literature review is considered as a critical stage of any academic research, where researchers' source-related and relevant information about their topics (Corbin & Strauss 2015:342).

2.2 Organisation of literature review

For this study, the literature review was organised into three categories:

- A presentation of Lesotho and international studies that relate to the adoption and use of different forms of library systems. In order to acquire a comprehensive knowledge about these library systems, electronic and print sources on cloud computing and library services platforms were consulted. Such journals included *Library Philosophy and Practice*, *Libraries and Computers, Library Hi Tech,* A*frican Journal of Libraries and Information Science*, *Library Review* and *Journal of Library Administration*. Conference proceedings and the National University of Lesotho website also brought some insights to this study. Reference sources such as *The SAGE Encyclopedia of Qualitative Research* and *The Sage Dictionary of Social Research* were also included.
- A conceptual framework for this study.
- Constructs of ITAUM as a framework that underpinned this study:
    - IT skills as a prerequisite for librarians
    - Institutional technology use policy and guidelines

- Perceived usefulness of LSPs
- Perceived ease of use of LSPs
- Perceived ubiquity of LSPs
- attitude

Studies had been conducted at TM Library, but no one this researcher is aware of had specifically explored the adoption and use of LSPs using ITAUM. In her doctorate thesis, Taole (2008) surveyed the performance of the INNOPAC library system in consortia and libraries of the Southern African region for its suitability for LELICO. Based on the satisfactory performance of INNOPAC in South African libraries, Taole (2008) recommends INNOPAC for LELICO, assuming improved sharing of local and global resources within consortia libraries. However, TM Library only implemented the Millennium system in October 2014 (Motsoeli 2014). Tseole (2016) investigated the level of knowledge sharing among TM librarians for enhanced service delivery and found that at TM Library, knowledge sharing was not practiced formally due to a lack of trust and staff morale. Nkuebe (2016) states that TM librarians lacked the following:

- basic librarianship skills, such as cataloguing, classification, abstracting and indexing, search techniques, information literacy teaching skills, use of technology to deliver services to students;
- generic skills, such as social media skills, communication, computer literacy and leadership skills;
- personal attributes, which include work ethics (e.g. friendly and welcoming, reliable, flexible, patient and showing empathy).

Nkuebe (2016) further recommends organisational learning to improve librarians' ICT skills and to help them to accept and embrace technological changes. On the other hand, Sejane (2017) studied e-resources and access and use at TM Library and revealed that TM Library needed modern IT infrastructure and searching skills, while Tseole (2020) used Roger's (1962) diffusion of innovation theory to examine the understanding of cloud computing services at TM library. Although TM librarians were aware of cloud computing benefits (Tseole 2020:254), little has been documented about the factors that may influence their attitudes to embrace and successfully continue to use their Sierra platform. This study specifically explored the perceptions of TM librarians towards the performance of the Sierra platform through the use of the combined technology acceptance models of Tripathi (2017) and Ajibade (2018),

geared towards the provision of a blueprint for the successful adoption and continued use of Sierra at TM library. Mbambo-Thata (2020), in her case study, elaborated on responsive measures that TM librarians took to support e-learning during the COVID-19 pandemic.

Consistent with the above findings, Masenya and Ngulube (2018) state that academic libraries are not able to sustain the management of digital content due to limited ICT skills and training, scarcity of digital content, a lack of standards, policies, procedures, funding, partnership, poor technology infrastructure and outdated technology. On the other hand, Ocholla and Le Roux (2011) and Grant and Osanloo (2014) speak about the understanding of theoretical frameworks and their application to qualitative research, while Tripathi (2017) and Ajibade (2018) highlight the competing, yet useful, models for measuring the degree of adoption and use of technology in libraries.

Ambali, Adesina, Oyedokun and Medinat (2022:135) state that for the delivery of electronic resources, the availability of electronic databases, e-journals, e-books and other digital holdings is crucial. The literature review of library automation and digital migration indicated that academic libraries struggled to demonstrate internet skills and obtain full financial support from their institutions/governments (Mutula 2012; Liman, Jain, Grand & Mutshewa (2017:1). As a result, they have been operating with poor and unreliable internet connection with a narrow bandwidth and unskilled librarians. This led to institutions using any affordable software to automate their libraries. These hardships impede quality learning, teaching and research in academic spheres (Mutula 2012; Coghlan & Robertson 2013). Sierra is a product of Innovative Interfaces Inc. and was introduced in 2012. This system is ranked the top academic LSP (Breeding 2015. With the explosion of cloud computing technologies, LSPs that are built on service-based architecture bring the following opportunities:

- they enable librarians to manage electronic content in a more inclusive and cohesive manner, irrespective of their formats and geographical areas;
- they make provision for the efficient management of workflows;
- they allow for capability to virtually integrate with discovery services (e.g. Sierra is bundled with Encore, which is a web-based application that facilitates searching for real-time selection and acquisition of electronic resources);
- they make it easy for libraries to integrate with external systems for resource sharing
- they provide online storage, online office, online collaboration and workflow management (Wang & Dawes 2012:76; Kumar 2017b; Pool 2017:6; Breeding 2018).

On the other hand, there is FOLIO, which is an open-source LSP that is compatible with all discovery services (Breeding 2018).

- Sierra as an LSP is valued for its ability to support complex electronic resource management processes Breeding 2018).

Based on the above findings, this researcher identified a gap and found it necessary to assess the attitudes of TM librarians towards the acceptance and use of the newly implemented Sierra LSP. The researcher believed that this study would raise awareness and usefulness of cloud computing technologies in libraries. For further research, the performance of the cloud-based Sierra should be evaluated from the perspective of students and faculty of the NUL. In order to gain a broader vision of cloud-based systems, it is important to conduct another study, which includes all the consortium libraries in Lesotho. Since the review of literature engaged in the selection and analysis of literature relevant enough to address the study problem (Schwandt 2015:274), this study discussed LSPs as cloud computing service, followed by the conceptual framework for this study.

2.3 Cloud computing

Since it allows for the creation of various information vessels that can be shared by users through the library website, cloud computing is one of the fundamental web applications that can be used in libraries (Jalamneh & Khder 2021:1). Cloud computing provides a ready-made model that makes the sharing of resources possible (Jalamneh & Khder 2021:1). Despite the utility of these models, librarians lack IT skills that motivate them to embrace these emerging technologies, such as in cloud computing or the 4IR. They can only access cloud-based services as Online Computer Library Catalogue (OCLC), Google services and developing repositories (Jalamneh & Khder 2021).

2.3.1 Benefits of cloud computing

Kumar (2017:80-81) and Alhosban, Pesingu, Kalyanam (2024) indicates that cloud computing has many applications for academic libraries, which include: virtual storage, integration with other systems, virtual collaboration, electronic resources, platforms, outsourced infrastructure, off-line access, virtual office and shared calendars. Scalability and ubiquity are the most appealing drivers of acceptance and use of cloud computing. LSPs, as cloud-based systems, have much to offer academic libraries. Kalyani and Bharathi (2022:29) maintain that it is not necessary to purchase any servers, software or apps when using cloud computing for library

automation. Kumar (2017:84-85); Kumar (2021:4-6) and Alhosban et al. (2024) provide the benefits of cloud computing as the following:

- Frequent and ongoing software updates by the cloud vendor;
- Cost effective – cloud computing is a good way for libraries to save money;
- Increased storage capacity – the maintenance of massive volumes of data is becoming an increasingly attainable goal for institutions because of the extensive infrastructure provided by the cloud vendors;
- In the case of a natural disaster, such as system downtime or breakdown, libraries are have a quick and easy solution to save their data;
- Among library operations, acquisition, circulation, cataloguing and searching can be performed on the cloud;
- Open infrastructure;
- Scholarly works can be published easily through social media platforms (e.g. Wordpress.com, YouTube and Twitter);
- Integration of systems;
- OCLC-based ILS services can be accessed from the cloud;
- Formulation of a web-based system is possible with cloud computing technology;
- Easy accessibility of customised services;
- Cloud-based services and collaboration are possible with cloud computing.

With SaaS, cloud computing also allows libraries to access services from a software program that is hosted elsewhere on the internet. The library is able to outsource the services from a remote server; the service provider offers maintenance services for libraries; providers are able to offer their services, as well as services they have outsourced from a third party, which services are configurable, ubiquitous and scalable over the internet. The librarians are also free from monitoring and maintenance of the IT infrastructure; and web-based applications are based on outsourced infrastructure to enhance complex and multi-format library collections (improved electronic resource management) (Kaushik & Kumar 2013; Tyagi & Senthil 2015:409; Kumar 2017; Pool 2017; Alhosban et al. 2024). Additional benefits of cloud computing include: unified search interface where users can remotely access multi-format collection; increased knowledge of computing; cheap devices for users (no need for costly cloud gadgets); enhanced performance due to the absence of loading programs/files, resulting in more efficient internet connection; provision of virtual infrastructure as there is no need for

costly, large and powerful servers; enhanced security of content; support for mobile devices; automatic and seamless updating of software and unlimited storage capacity (Wang 2016:291; Jalamneh & Khder 2021:1-2).

2.3.2 Cloud computing in libraries

Wada (2018:25) states that library patrons can use Wi-Fi in the library to access the resources located on the cloud. Additional requirements for these libraries include high-speed internet connection, digital content, digital librarian and thin client architecture (a computer that operates from resources housed on a central server other than a hard drive) (Jalamneh & Khder 2021). Wireless access points are valued for their enhanced efficiency that enables users to rapidly access resources housed on the cloud. They are flexible and versatile tools that expand network signals and they are user-friendly tools with less technical effort (Wada 2018:25). The figure below depicts the three service models based on this cloud computing infrastructure digital libraries/smart libraries:

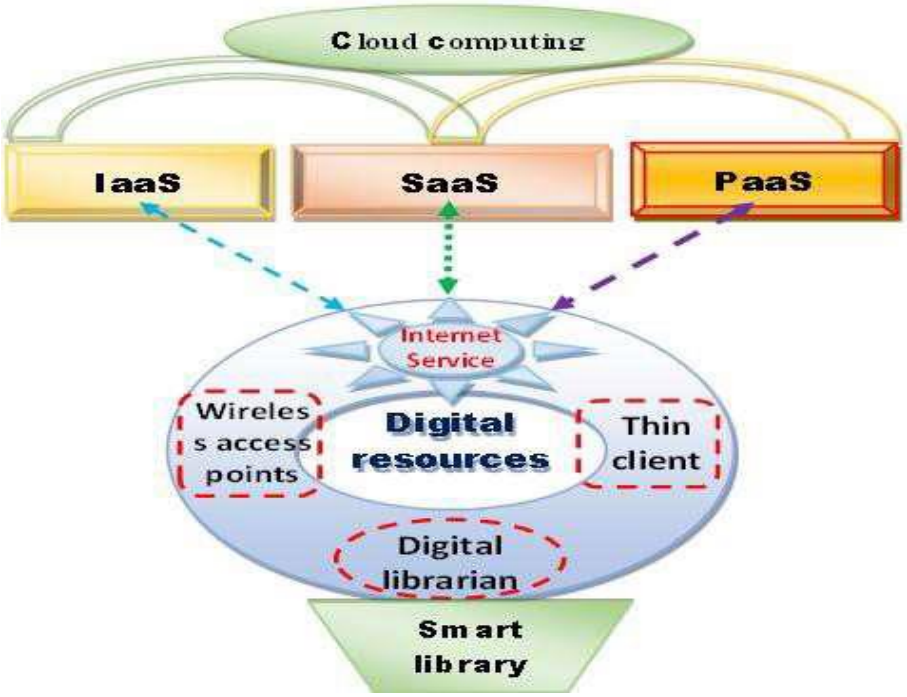

Figure 1: Service models based on cloud computing infrastructure in libraries adapted from Wada (2018:24)

Having noted the usefulness of wireless technology and the three cloud computing service models of smart libraries, Jayakumara (2022:112) lists the benefits of cloud computing as the following:

- cloud computing enables librarians to transform materials into digital format and makes it available through internet-connected devices; automation of library processes with minimal IT infrastructure;
- it promotes e-learning (provides elastic storage for study materials, online examinations can be easily managed and students' conversations and revisions can occur simultaneously from their different locations);
- library automation (libraries no longer worry about automation software installation, updates and backups because the software supplier takes care of software maintenance and upgrades on the cloud);
- issuing of e-books (it is now easy for librarians to circulate e-books on library cloud-based platforms;
- it provides services for current awareness (it is now conceivable and incredibly simple to offer current awareness services to every library user);
- the library can use the LSP to give access to their holdings from a single place by utilising a union/shared catalogue or OPAC;
- acquisitions (it is easy to prevent duplications during collection-building processes, as clients may be informed of the replications and given access to other resources);
- it can provide services for library bulletin boards;
- it can document delivery service (librarians can now leverage cloud computing services to offer library patrons a document delivery service, as the distribution of files is much easier with cloud computing);
- cloud computing platforms make it easy for library patrons to download articles and other materials;
- librarians can deliver user education and orientation programmes online to allow for social engagement (e.g. saving presentations, videos and lessons on a web platform such as YouTube, Facebook or Tik Tok);
- it saves time and money (sharing information like bibliographic information, content pages, cover pages, past examination papers, syllabuses and other reading materials on a single platforms saves time and money); content discovery (information can be stored

on the cloud and can be accessed from anywhere, at any time, making searching and retrieval of information easy and practical for researchers).

2.3.3 Disadvantages of cloud computing

Jayakumara (2022:112) states the disadvantages of cloud computing as the following:

- it requires IT skills (institutions must have their own IT personnel who are conversant with cloud computing technologies for the integration of several pieces of the hardware, such as printers, USB devices and internet connections);
- it requires a reliable network connection with high bandwidth; institutions have limited authority over how services are kept running or adjusted since they rely mainly on vendors for backups, updates, restorations and disaster recovery;
- less flexibility (there is minimal flexibility on modification depending on individual requirements because cloud computing is offered by the third party);
- cloud-based system are sometimes slow (due to the high upload and download rate on the net, there might be delays since web-based applications are slower than accessing such software products from a desktop – regardless of how good the internet connection is);
- records are kept in the cloud and these invisible servers make the institutions worry about the safety of their records because finding and accessing the actual location of the servers is a hassle.

2.4 An overview of LSPS

LSPs are cloud-based library management systems that perform high above and beyond built-in features of a locally installed ILS, as LSPs are constructed on a multi-tenant SaaS model and use cloud computing, web applications and discovery services to manage and store physical, digital and electronic content as well as other services in a single integrated system (Pradhan 2019:12). In the case of discovery services, users do simultaneous searches across different information sources, such as library collections, paid databases and open access resources, which are publications that have been made freely accessible to the public by the authors using library discovery services (Shaw 2022:32). Examples of LSPs that are already in the market include Sierra as a product of Innovative Interfaces, Alma designed by Ex Libris, Worldshare Management Services developed by OCLS and FOLIO which is an open platform (Pradhan 2019:12).

2.4.1 Characteristics of LSPs

Library services platforms may have different qualities depending on the design of the platform (Pradhan 2019). The following are some functional and technical characteristics of LSPs:

2.4.2 Functional characteristics of LSPs

Breeding (2020) and Pradhan (2019:15) list the functional characteristics of LSPs as the following:

- Flexible metadata structures that have the capability to describe different formats of information sources
- They enable librarians to carry out acquisitions and cataloguing operations that house all formats and their associated legal constructions
- Integrated knowledge base for the management of electronic resources
- Workflow based on several types of procurement contracts:
    - Payment of electronic resources
    - Collection of open access information sources
    - Administration of article payment and silencing
    - Demand-driven acquisition of resources
    - Acquisition of print materials
- Discovery services
- Link resolver
- Data analytics and reporting
- Inter-library lending and resource sharing

2.4.3 Technical Characteristics of LSPs

Pradhan (2019:15), Kouis and Agiorgitis (2020) and Kalyani and Bharathi (2022:29) share the innovative characteristics of LSPs as the following:

- LSPs are far beyond the traditional ILSs, as LSPs possess built-in innovative features that make them all-in-one systems that house all modules: cataloguing, circulation, acquisitions, digital content and the most recent technology for library automation;
- Interoperability between system: Without the end user having to exert any effort, LSPs can interact with various systems, applications, devices or products to network and communicate in a cohesive manner;

- LSPs support new metadata standards;
- The structural design of LSPs is on SaaS model, making them ubiquitous;
- LSPs are multitenant systems. LSP multi-tenancy occurs when numerous independent implementations of one or more programs run in a cloud environment.

2.4.4 Features of LSPs and their benefits

In this era of LSPs, the entire automation of the library operations, including circulation, acquisitions, OPAC, electronic resource control and management is moved to the institutional library SaaS model, leading to the ubiquitous delivery and access of information services and resources, regardless of geographical location (Shaw & De Sarkar 2021:315). Shaw and De Sarkar (2021) continue to share the following features of LSPs:

- Processing of library materials – with LSPs, selection or suggestions of faculties for the acquisitions of books and journals can be shared over the LSP, as well as current awareness services like sharing the cover pages of the newly acquired materials;
- Membership registration – newly arrived students can be registered over the library LSP module;
- Circulation – if the platform server is connected to both private and public clouds, further library lending operations, such as bookings for on-demand library materials, renewing borrowed items and paying overdue fees can be extended to the public domain;
- Library alerts for corpus current awareness, new arrivals, exhibitions and digital resources through library tour.

Moreover, the complete method is carried out in a more practical manner, as the acquisition work has changed substantially. The key improvement in the LSPs is that the acquisition librarian can now perform a search on either the incumbent database or the library of congress database before entering the proposed order (Grammenis & Mourikis 2019:359). LSPs are built on a SaaS model (Tyagi & Senthil 2015:409). From a design perspective, a well-constructed LSP has the following features:

- scaling, which is the platform to process numerous requests at once while also maintaining the same level of service even when the volume of demands rises over time;

- one instance of a software application meets the needs of numerous clients under a multi-tenancy design, each customer being referred to as a tenant;
- customisation, where individual customers set the software's appearance and performance for their users using metadata (Tyagi & Senthil 2015:409-410).

LSPs come with discovery search engines that were developed with the goal of making it simple for patrons to conduct searches for electronic resources, while also simplifying the library processes, such as acquisition, circulation, cataloguing and the management of electronic resources (Grammenis & Mourikis 2019).

The following table shows the developments of library management systems, including Sierra LSP, as Innovative Interfaces (now acquired by Ex Libris, a ProQuest company) developed it from Millennium, which was designed from INNOPAC (Krol 2020:41; Shah, Hussain & Shafique 2020; Bai 2022:3):

Table 2: Library management systems' development trend

	Web 1.0 Systems	**Web 2.0 Systems**	**Web 3.0 Systems**	**Web 4.0 Systems**
Period	1950-1970	2005-2010	1971-2010	2011 to date
Design	From manual card catalogue to single module system	Social networking: Flicker, Google Drive, Gmail, YouTube, Facebook, Twitter, Wikis, RSS feeds, LinkedIn, tagging, etc.	Integrated module systems	LSPs: Service-oriented architecture/ micro-service architecture
Features	Print material management system		Management of print collection, journals and use of OPAC interfaces	Integrated, management of print, digital and electronic resources, integrated search and discovery services

Systems	OCLC online cataloguing	Social media platforms	INNOPAC/Millennium and Dynix	Alma, FOLIO, Sierra, WorldShare Management System

Web 5.0 – Web 6.0: While Web 4.0 is a mobile space in which individuals, as well as virtual entities, collaborate to generate new services, Web 5.0 portrays the web as a sentient utility that uses analytics to customize, search and enhance the user experience, as well as to operate for or on behalf of an individual (Krol 2020). Web 5.0 features an open and smart web based on emotional interaction, such as wearable sensors between humans and computers (Noh 2015). As a result, like Web 4.0, Web 5.0 is known as symbiotic web, and the Web 5.0 systems may include a car that drives itself, a refrigerator that orders food items from the store or human robotics that operate the library systems (Krol 2020). In essence, Web 5.0 is still rooted in human-device-software connection tied to cables, sensors or a wireless connection, which Web 6.0 aims to fix, as there is a possibility that Web 6.0 will mark a shift in human cognition to the cloud or the virtual world (Krol 2020:41). Below is the figure showing the WWW trend from Web 1.0 to Web 6.0:

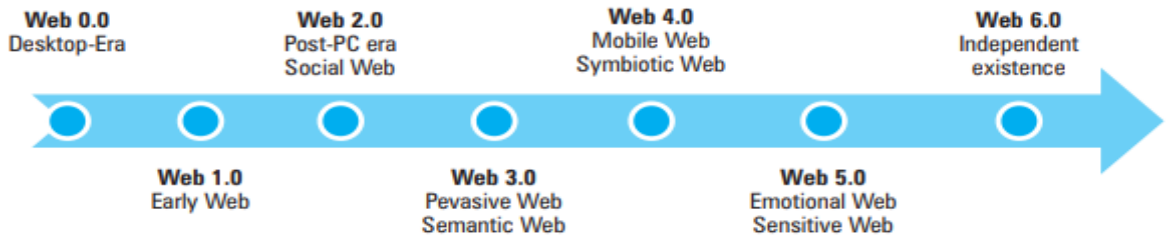

Figure 2: Development of WWW adapted from Krol (2020:35).

2.4.5 Electronic resource management

Emergent technologies brought new positions, such as electronic resource librarians who manage electronic and digital content to prevent duplicate orders (Grammenis & Mourikis 2018:47). Grammenis and Mourikis (2018) further declare that large corporations like EBSCO and ProQuest have assisted academic libraries to incorporate the majority of their electronic resources and integrate these resources or databases utilising Link Resolver/APIs instead of

obsolete OPAC. Apart from electronic resources, some of the LSP vendors enable librarians to acquire printed materials.

As an example of the benefits of LSPs, Pradhan (2019:18) lists the following features of Sierra:

- Unified application – Sierra integrates various library operations, such as e-resource management (ERM), circulation, cataloguing, acquisitions and more into a single user-friendly interface to enable continuous progress on ongoing initiatives or once-off projects and saves a lot of time;
- RESful APIs – Sierra is accessible and able to link to whatever community the library is part of, including learning management systems, finance applications, and other communities;
- Workflow on the Go – Sierra relieves librarians from repetitious material handling, as it enables virtual accessibility of resources from mobile devices;
- Bibliovation discovery layer – Results from database providers like EBSCO, ProQuest and boutique databases that are offered by database aggregators can be included in the Bibliovation discovery layer output;
- Biblios Cataloguing Editor – Biblios is a web-based cataloguing editor that complies with MARC21 and offers complete support for authority, holdings and bibliographic entries. Once there are violations of MARC21 validation rules, Biblios notifies librarians with color-coded alerts;
- Getlt Acquisitions – A web-based, EDI compliant fund accounting program. Assistance for multiple-layer fund hierarchies, invoices, sales orders and Z39 searches is included. GetIt Acquisitions utilises APIs to share data with the catalogue and has its own relational database. Given the overview of LSPs as cloud computing applications, the next section elaborates on the factors that predict the adoption and continued use of LSPs.

2.5 Factors that influence the successful adoption of LSPs

In order to build or implement the technological systems in libraries, it is important to understand the success factors (Kato, Kisangiri & Kiajage 2021). Based on this, the section discusses the success factors that influence the adoption and use of LSPs. The technology acceptance model (TAM) is an information systems theory designed to forecast technology uptake, and within the TRA, TAM used the causal link: belief – attitude – intention – action

(Lala 2014:149). According to this paradigm, when technology users interact with new technology, a range of factors influences their judgement about how and when to use this technology (Lala 2014). These factors include IT skills and experience, perceived usefulness (PU), perceived ease of use (PEOU), perceived ubiquity, perceived risk, security, perceived cost, supervision, IT policy rules and guidelines (Davis 1989; Tripathi 2017; Ajibade 2018). However, perceived risk, perceived cost and security may negatively affect the acceptance and continued use of technology (Tripathi 2017). As argued by Ajibade (2018), PEOU and PU did not have enough weight to influence successful adoption in the work environment, and added IT skills and experience, manager's directives that are moderated by the company policy, rules and IT guidelines, as additional factors that influence acceptance and continued use of technology. For this study, this researcher used ITAUM. ITAUM was proposed by Ajibade (2018) and extended the TAM. Ajibade's (2018) proposal is that staff IT skills and experience influence the ease of use of technology, while technology adoption is moderated by institutional rules, policy and IT guidelines (Ajibade 2018:9).

2.5.1 IT skills and experience as a requisite for librarians

IT skills and experience promote ease of use of technology, while rules, policy and IT guidelines influence technology adoption and intention to use it (Ajibade 2018:1). It is for this reason that staff need continued professional development in libraries so that librarians become conversant with emerging technologies (Chigwada & Chisita 2021:30). There is a need for continued professional development in libraries so that librarians become conversant with emerging technologies (Chigwada & Chisita 2021:30). Khan and Bhatti (2017) specify that academic librarians need to constantly develop their digital skills. IT skills and experience influence ease of use of technology, while the adoption and intention to use technology is effected by directives from senior librarians, who are guided by university rules, policy and IT guidelines (Ajibade 2018:9). Furthermore, everybody's daily lives rely on cloud computing these days, hence there is a need for academic librarians to develop smart libraries that consolidate cloud computing technologies to support research, teaching and learning (Wada 2018:25).

Khan and Bhatti (2017) urge information professionals to constantly improve their digital skills. However, TM librarians need to acquire combined competencies that are disciplinary, generic and personal, with the emphasis on ICT/IT skills, in order to keep pace with technological advances and meet the demands of technology savvy students (Nkuebe 2016:91-

92). Ayoku and Okafor (2015:516) maintain that incompetence of academic librarians may lead to the following:

- a redundant library that is resistant to change inefficient delivery of resources and resource sharing;
- incompetent students who are not able to search and access library resources on their own;
- poor utilisation of the library in general;
- library's loss of identity as other organisations may claim to offer more and better services to the institution; and inability to demonstrate the core business, which is to support teaching and learning as well as research through the application of advanced ICTs.

Nowadays, libraries are going digital in order to provide resources, such as electronic books, electronic journals and databases over the internet, and these developments compel librarians to provide virtual services, which require ICT skills (Ayoku & Okafor 2015:519). However, technology is not always free from challenges. Most librarians have knowledge of word processing and email, but lack skills to assess and process electronic content, use subject gateways and special databases, perform organisation of databases, and their attitudes do not give them the ability to be conversant with web design applications (Boateng et al. 2014; Ayoku & Okafor 2015). This is due to the following challenges:

- a lack of interest to acquire ICT skills;
- technophobia (fear of technology);
- ignorant and not passionate librarians;
- poor library funding;
- a lack of funding to sponsor training;
- unavailability of training facilities;
- scarcity of local professionals to train librarians;
- scarcity of training opportunities;
- lack of influence from the library management (Ayoku & Okafor 2015:513-616).

On the other hand, Kumar (2017a:83) states that challenges of cloud-based systems are the following:

- Cloud-based systems rely on internet connection – if the internet connection is problematic, the cloud-based system is affected;
- Downtime/service outages that are sometimes faced by cloud providers;
- A lack of security and privacy for sensitive content such as user profiles, which may lead to identity theft;
- Content is prone to cyber-attacks since it is delivered and accessed through the internet;
- Implicit dependency of vendor lock-in/authentication.

Nkuebe (2016) states that it is inevitable for TM librarians to embrace change and acquire formal and informal skills in LIS/IT to satisfy millennial students who are knowledgeable in computing. Failure of TM Library to keep up with technological advances may lead to institutional bankruptcy (Nkuebe 2016). Academic libraries are no longer places for browsing and searching an array of books to find useful information. However, Khan and Bhatti (2017:573) suggest that academic librarians can acquire digital skills from library associations, in-house training, online training and tutorials in order to use modern library technologies to acquire, store, protect and transfer electronic resources. Chigwada and Chisita (2021:37) also recommend formal education, exchange programmes on the use of emerging technologies, massive open online courses (MOOCs), webinars, online conferences, workshops, seminars, and contact leave for librarians to remain relevant in this era of Web 4.0.

2.5.2 Institutional IT use policy and guidelines

Owing to the library's central role in scholars, university libraries had to adapt throughout the years in order to fulfil their mandate to serve as academic libraries that satisfy the demands of their users in universities (Okiy 2010:2). In order to achieve this during this era of pervasive technologies, libraries ought to draft IT policies and guidelines for managing their information technology systems; designing new hardware and software and securing the retention of data, collaboration, safety of data, secure networks, data backups and system breakdown (Ubogu 2022; Soliman & Mohammadnazar 2022; Farid, Warraich & Iftikhar 2023).

IT policy and guidelines are organisational data security that inform workers about what they are allowed and forbidden to do with the organisation's resources (Soliman & Mohammadnazar 2022:6812). As Peet (2023:18) concurs, a library policy provides its best and

most effective line of defence when encountering difficulties and the guidelines it specifies what rules employees must obey, and without exceptions. University libraries worldwide have IT use policies on safeguarding information, safety for customers, deterioration of computers and peripherals, sharing of information, safety of data, a safe computing environment, system glitches and recovery of data, and staff development (Farid et al. 2023:11). The library policies should be continually updated documents with guidelines for all the library processes, such as IT use, acquisition of print and e-resources, cataloguing, circulation, digitisation, information processing and open access. These policies should be evaluated every two or three years, depending on the demands of users (Johnson & Dubisky 2022:20-21; Lund 2021; Ocks & Gabriel 2021; Peet 2023).

In the context of this study, the TM library communicated the policy and guidelines in the form of manuals, pamphlets, booklets, verbal announcements, and emails. The institutional rules, policy and IT guidelines regulate the librarians' acceptability and intention to use new technology, while the librarians' IT skills and experience encourage the ease of use of technology (Ajibade 2018:9). On the other hand, the founder of TAM (Davis 1989), and many other studies, used perceived ease of use as the measure to test if technology/a system is easy to use, which, in turn, may influence the intention to use such a system.

2.5.3 Perceived usefulness

Tripathi (2017: 127) states that perceived usefulness is the degree to which a person believes that using a particular system would enhance his/her job performance. PU has a direct influence on librarians' attitudes and will determine the degree to which TM librarians accept the LSP, and will enhance their performance as they expect it to be useful and functional. Gallagher (2016:2021) lists the usefulness and functionalities of LSPs as the following:

- With LSPs, software upgrades are no longer done manually and locally, as LSPs operate from a hosted platform;
- User-interfaces are more user-friendly and fully mobile;
- Reporting features are more robust and easy to manoeuvre;
- Usage statistics can easily be pulled directly from the vendor;

- Ability to integrate with institutional systems (apart from the library) through IPs' enhanced resource sharing, and ability to minimise duplication;

- Provision of knowledge bases that are frequently updated, with indexing that has already been done by the vendor/publisher, taking off a huge burden from technical services librarians, IT staff and systems librarians.

2.5.4 Perceived ease of use

However, in view of Ajibade's (2018) argument, the complexity of some systems continue to overwhelm users, regardless of their IT proficiencies, seeing it fit for perceived ease of use to be included in the conceptual model of this study. Perceived ease of use is the extent to which a person thinks that using a particular system would be free of mental effort or would be user-friendly (Tripathi 2017:127). In the cloud-computing environment, PEOU has no impact on PU. Rather, IT skills and experience influence PEOU, while PEOU directly influence the attitude, as users prefer technology that is easy to use (Tripathi 2017; Ajibade 2018). Moreover, PEOU and PU are the core constructs of TAM that made it easy for several researchers to gauge the level of acceptance of new technologies and continuance to use (Davis 1989).

Therefore, this study included perceived ubiquity, as it sought the predictors of acceptance and continued use of Sierra as a virtual platform in the work environment. IT skills and experience, strategic documents, such as institutional rules, policy and IT guidelines, perceived usefulness, perceived ease of use were the main predictors of TM librarians' intentions to accept and continue to use Sierra LSP. This assumption corresponds with that of Ajibade (2018:9) as he states that IT skills and experience influence the intention to use technology, while the adoption and intention to continue to use technology is influenced by directives from senior librarians who are guided by library rules, policy and IT guidelines (Ajibade 2018:9).

2.5.5 Perceived ubiquity/accessibility

Perceived ubiquity and perceived usefulness are considered to be the key factors that predict continued intention to use cloud computing (Tripathi 2017:124). Perceived ubiquity allows users of Sierra as SaaS to access communication and networks at any time and any place, breaking the geographical barrier for library users and librarians. It is about the individual librarian's perception of the provision of constant interaction with the system, as well as mobility (every time accessibility of communication and network regardless of geographical

distances, using internet and Wi-Fi connectivity), as LSPs can fully support mobile technology (Gallagher 2016). This implies that Sierra, as an LSP, brings similar opportunities to TM librarians and the communities they serve. This is about the individual librarian's perception of the provision of constant interaction with the system (accessibility anywhere, anytime), as well as mobility.

2.6 Summary

Chapter 2 reviewed literature on studies that have been conducted in Lesotho on the adoption and use of library systems, as well as LSPs as cloud computing applications. The aim of this literature review was to identify and assess previous works that were related to the topic in Lesotho with the aim of filling the gap and support the outcome of this study. The literature revealed that there had been variations of automation systems at TM Library prior to the current FOLIO LSP. Based on this view, reviewed literature further recommended the use of ITAUM to highlight factors that influence the acceptance and continued use of LSPs in libraries. These influential factors included IT skills and experience, supervision, ubiquity and usefulness of LSPs.

CHAPTER 3: THEORETICAL FRAMEWORK

3.1 Introduction

Chapter two discussed the conceptual framework, as well as the studies related to the topic, and clarified the nature of LSPs. This chapter discusses the theoretical/conceptual framework selected for this study. The scope of literature review was informed by the objectives of this study. The data gathered and the widely and thoroughly studied literature is the source from which the theoretical framework has been developed, giving this researcher important details and concepts related to the subject under study (Osanloo 2014; Ngulube 2015). Theoretical framework is the basis for the study from which all knowledge about the study is generated; it works as a foundation and anchor for the rationale for the study, problem statement, purpose, relevance of the research and its questions. It creates a foundation for the literature review, the methodologies and analysis, with the implication that the study has no meaning and direction without a theoretical framework because it is a concrete plan for any investigation (Gant & Osanloo 2014:12-13).

Most scholars mistakenly use theoretical and conceptual frameworks interchangeably, yet, they have different values and meanings altogether (Grant & Osanloo 2014). A theoretical framework emanates from available theory in previous works as the researcher's view of the case being studied. A conceptual framework, on the other hand, is the investigator's observation of how the study question will be addressed or the exact approach the study will follow, and the link within constructs in the study: concepts, assumptions and beliefs that support the design of this study (Grant & Osanloo 2014; Tripathi 2017). A conceptual framework displays a logical structure of related concepts in a pictorial or visual way in a study. It also allows the researcher to specify and define concepts within a research problem (Grant & Osanloo 2014; Tripathi 2017). Finding the study problem results in finding concepts that correlate with a phenomenon being investigated. Conceptualisation is the process through which the researcher gives these concepts a theoretical meaning: describing operational concepts abstractly in theoretical terms (Lewis-Beck, Bryman & Liao 2004:161-162). Leshem and Trafford (2007:101) indicate that conceptual framework helps the researcher by:

1. showing links among philosophies
2. decreasing theoretic facts into statements/models

3. explicitly explaining philosophies that support the study
4. offering theoretic foundation to plan and understand the research
5. generating theoretic relationships within the existing study, existing philosophies, interpretation of results, and theoretical conclusion.

This was a qualitative study with inductive reasoning/logic: a logical progression from specific theory (observations) to general theory. In such a case, specific ideas and experiences will result in conclusions being a theory. This implies that the researcher will organise patterns, categories and themes inductively, building theory other than testing the hypothesis (Suter 2012:93; Creswell, 2013:45; Ritchie, Lewis, Nicholls & Ormston 2014).

Researchers use theory in qualitative inquiries during the analysis of data, interpretation and discussion of findings (Casanave & Li 2015). Since a theoretical framework is too abstract and formal, the researcher used a conceptual framework to bring a clear picture of the situation at hand. For better clarity and understanding, the researcher starts with the delineation of "theory". Theory is a conceptual description of an occurrence under discussion and how it relates to other occurrences in the study (Ocholla & Le Roux 2011:62). A theoretical/conceptual framework defines the process of framing and the result is a framework (Casanave & Li 2015). A framework justifies why and how an investigation is being carried out, it specifies the research boundaries, it enables the researchers to support and interpret the outcome and it connects researchers to scholarly works of comprehensive insights (Casanave & Li 2015:107). A theoretical framework is a plan for the entire research. "It provides a platform to stipulate how the researcher will philosophically, epistemologically, methodologically and analytically conduct the study" (Grant & Osanloo 2014:13). It defines fundamental factors, constructs or variables, and predicts the relationship between them, while also being guided by the study objectives, theoretical model, methodology and literature review: the researcher's epistemological and ontological beliefs that guide the study (Ocholla & Le Roux 2011:62-63; Grant & Osanloo 2014:16-17).

3.2 Conceptual framework

Since this was a qualitative case study, which was about the collection of in-depth information about the phenomenon, the researcher used a conceptual framework of ITAUM as a foundation for a theoretical model. This study opted for a conceptual framework of ITAUM because the

nature of this study was interpretive and descriptive. The interpretivist lens/inductive approach involves observations to generalise and generate theories (Ngulube, Mathipa & Gumbo 2015:48). A conceptual framework displays the link between perceptions and their effect on the situation under study, and provides an understanding/clarity, instead of a theoretic description (Ngulube et al. 2015). Conceptual framework involves the use of diagrams to show related constructs for the study and allows the researcher to build upon the existing framework to best address the research problem (Maluleka, 2018). Furthermore, the scarcity of theory on LSPs and virtual libraries compelled this study to rely on the conceptual framework, ITAUM and theories from international publications.

Concepts are indicators that researchers ascribe to components of the situation under investigation (Ngulube et al. 2015). The conceptual framework displays a logical structure of related concepts in a pictorial or visual way in the investigation. It also permits the investigator to specify and define concepts in a research problem (Grant & Osanloo 2014; Tripathi 2017). This study used concepts and constructs drawn from the TAM because this model has received the most recognition among all the models suggested for research into technology adoption (Tripathi 2017:145). Furthermore, TM librarians need to accept and use a self-service Sierra LSP. By so doing, these librarians will take their library to a virtual level of productivity, security and services (Hsiao & Tang 2015). ITAUM integrates critical determinants of technology adoption, such as PEOU, PU, ubiquity (mobility and accessibility), as well as personal traits, which include self-efficacy and willingness to try a new system. The introduction and optimal use of ITAUM would initiate a web-based automation adoption processes in libraries (Tripathi 2017; Hsiao & Tang 2015).

3.3 Technology acceptance models

Various and competing information technology models have been revealed with varying sets of user acceptance determinants (Venkatesh, Morris, Davis & Davis 2003:425). The researcher consulted a variety of these models, including Unified Theory of Acceptance and Use of Technology (UTAUT). Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM), which was developed from the TRA. Motivational Model (MM); Theory of Planned Behaviour (TPB); Combined TAM and TPB (C-TAM-TPB); Model of PC Utilisation (MPCU); Innovation Diffusion Model (IDM); Social Cognitive Theory (SCT); Aaron Walter's hierarchy of basic user needs from Therese Fessenden's Theory of 2017; and Technology

Acceptance and Use Model (TAUM), which shows determinants of technology acceptance in the context of the work environment (Venkatesh et al. 2003; Fessenden 2017; Ajibade 2018).

Looking at the above models, this researcher did not find them useful for this study, as their constructs are not in line with the current library technology that the study wanted to investigate. That is, IT use policy, IT skills, ubiquity and supervisors' support are constructs that are lacking in these stated models. Secondly, these models were designed for individuals' acceptance of technology and did not cover the employees in their work environments (Ajibade 2018). For these reasons, the researcher decided to integrate three models: TAM of Davis (1989), Extended Technology Acceptance Model of Tripathi (2017) and TAUM developed by Ajibade (2018) to explore the adoption and use of LSPs at TM library services.

3.4 Conceptual framework for this study

Although Tseole (2020) tested the understanding of cloud computing at TM Library using the innovation theory of Rogers (1962), this study argued that Rogers's theory lacks technology use policies and guidelines and staff's IT skills and experience that drive the successful implementation of new systems. Ajibade (2018:1) confirms that IT skills and experience are fundamental determinants of ease of use of new systems, while the adoption and intention to use such systems are moderated by institutional technology use policies and IT guidelines. Aviamu, Popoola and Atuase (2019:1) indicate a lack of institutional policy guidelines, a lack of awareness of potential cloud computing opportunities, the low adoption rate of cloud computing and limited authentication procedures of cloud service providers as major challenges faced in African academic libraries.

This study aimed to explore the perceptions of TM librarians with regard to the adoption of the newly implemented Sierra LSP at the TM Library pairing TAM and TAUM as the framework for this study. It was based on the researcher's view that the perceptions of the TM librarians had a direct influence on their adoption of the technology. Among the constructs of the TAM/TAUM, this study used IT skills, perceived usefulness and ease of use to explore the perceptions of TM librarians towards Sierra Platform. Ajibade (2018:1) argue that it was not appropriate for researchers to use TAM in the context of the work environment like libraries, organisations and firms, where IT skills, guidelines, policies and directives from supervisors ruled technology adoption.

Davis (1986) first proposed TAM, a version of TRA designed exclusively for simulating user acceptance of information systems. TAM was aimed at presenting a general, theoretically supported and coherent account of the factors influencing technology adoption that may justify user behaviour across a wide range of end user computing system and user communities (Davis 1989). That is, TAM is an information systems theory created to forecast how people would react to new technologies (Tripathi 2017). Information systems specialists use TAM to predict whether users would accept the system, establish the reasons behind the slow acceptance or rejection and make amendments to entice the attitudes of users (Davis 1989:999).

A conceptual framework is the investigator's consideration of the way the study question would be addressed; it is a specific route of the investigation and the relationship among the constructs in the investigation; it defines the fundamental factors and constructs and predicts the relationship with them (Grant & Osanloo 2014; Ngulube et al. 2015). That is, the researcher's epistemological and ontological beliefs that guide the study (Grant & Osanloo 2014:16-17). Hennink et al. (2020:37) further concurs that in either qualitative or quantitative research, a conceptual framework is required for the following reasons:

- It gives the study direction and structure, it clarifies the concepts being investigated in the study, it offers a way to further develop the research question, it reflects the theoretical premises and concepts used in the study;
- it reflects the anticipated connections between the concepts being investigated.

This study, therefore, presents a combination of concepts taken from technology acceptance models proposed by Davis (1989), Tripathi (2017), and Ajibade (2018) to form a conceptual framework. These concepts included perceived ease of use, perceived usefulness and actual use of the system from Davis (1989); system's ubiquity from Tripathi (2017); IT skills and experience, as well as institutional use policy and guidelines from Ajibade (2018).

3.4.1 Technology Acceptance Model of Davis (1989)

As depicted in Figure 3, TAM has two fundamental constructs for systems' acceptance, which are perceived usefulness and perceived ease of use, where perceived usefulness is described as users' believe that utilising technology applications would increase their performance at their respective workplaces. Perceived ease of use is defined as the extent to which users of systems believe such systems would be user-friendly (Davis 1989; Tripathi 2017).

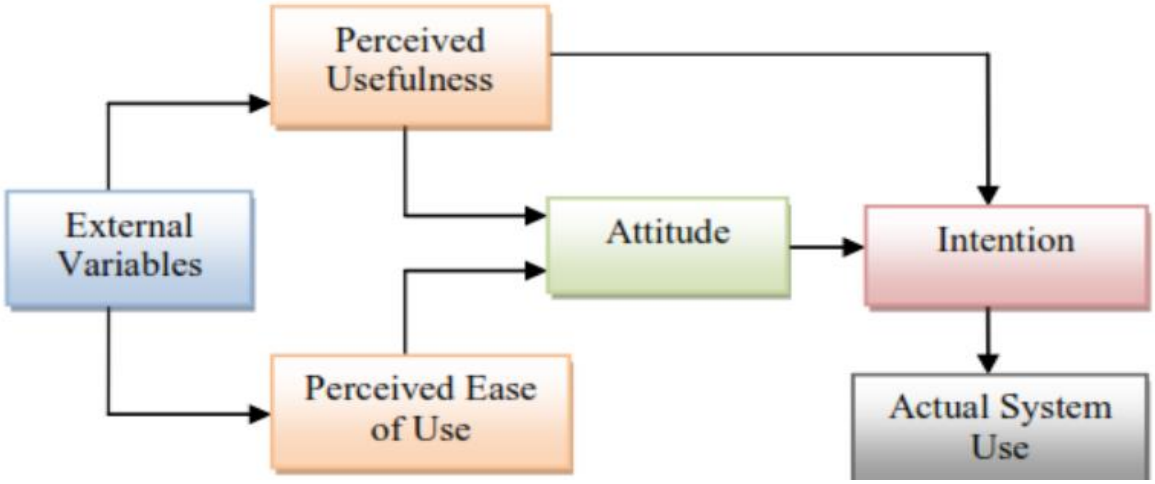

Figure 3: Technology Acceptance Model proposed by Davis (1989)

Figure 3 depicts the flow of the original TAM constructs, perceived usefulness and perceived ease of use that influence user's attitude, which, in turn, affect the intention that leads to the actual use of the system. Perceived ease of use directly motivates the intention that determines the actual use of the system (Davis 1989). Tripathi (2017:145) describes TAM as a model that has received the most recognition among all the models suggested for technology adoption research. This researcher extracted useful concepts from the next model to develop a framework for this study, as she used a combination of concepts from three technology acceptance models.

3.4.2 Extended technology acceptance model of Tripathi (2017)

The ETAM below was developed from TAM by Tripathi (2017), while trying to understand the factors that influenced the senior managers' intention to use cloud computing technology in their companies.

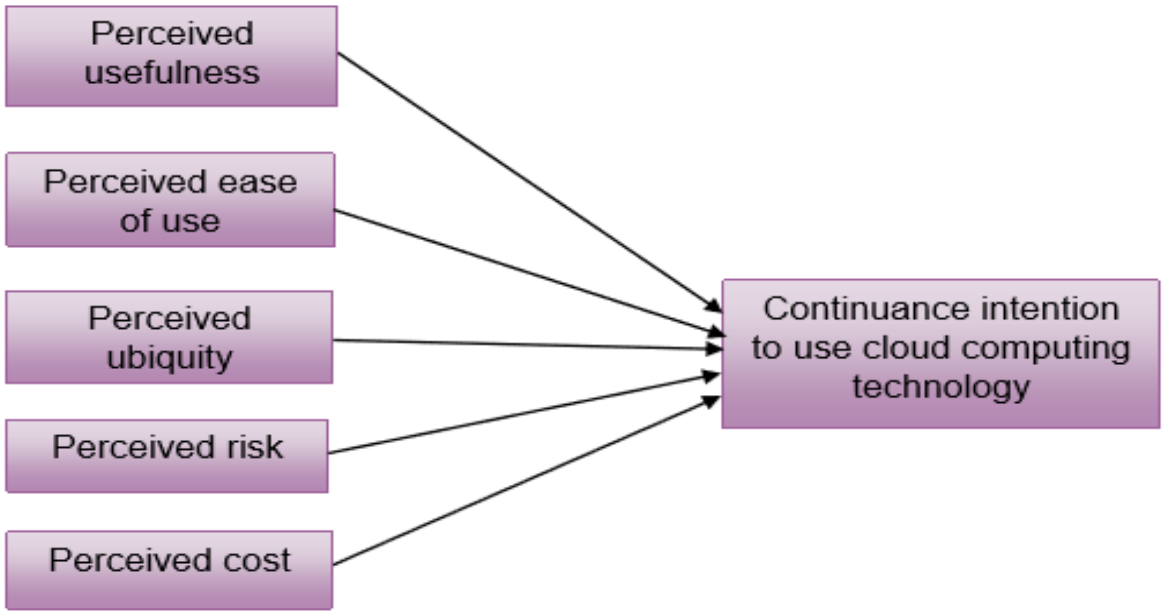

Figure 4: Extended Technology Acceptance Model (ETAM) proposed by Tripathi (2017)

The above model of Tripathi (2017) indicates that perceived usefulness and perceived ubiquity influence the adoption and use of cloud computing technology in organisations. Perceived ease of use could not influence perceived usefulness because large companies are well prepared, and have a well-established IT infrastructure, including employees who are well trained in IT/ICT-related issues (Tripathi 2017:146), while perceived risk and perceived cost could not influence the adoption of cloud computing.

3.4.3 Technology Acceptance and Use Model of Ajibade (2018)

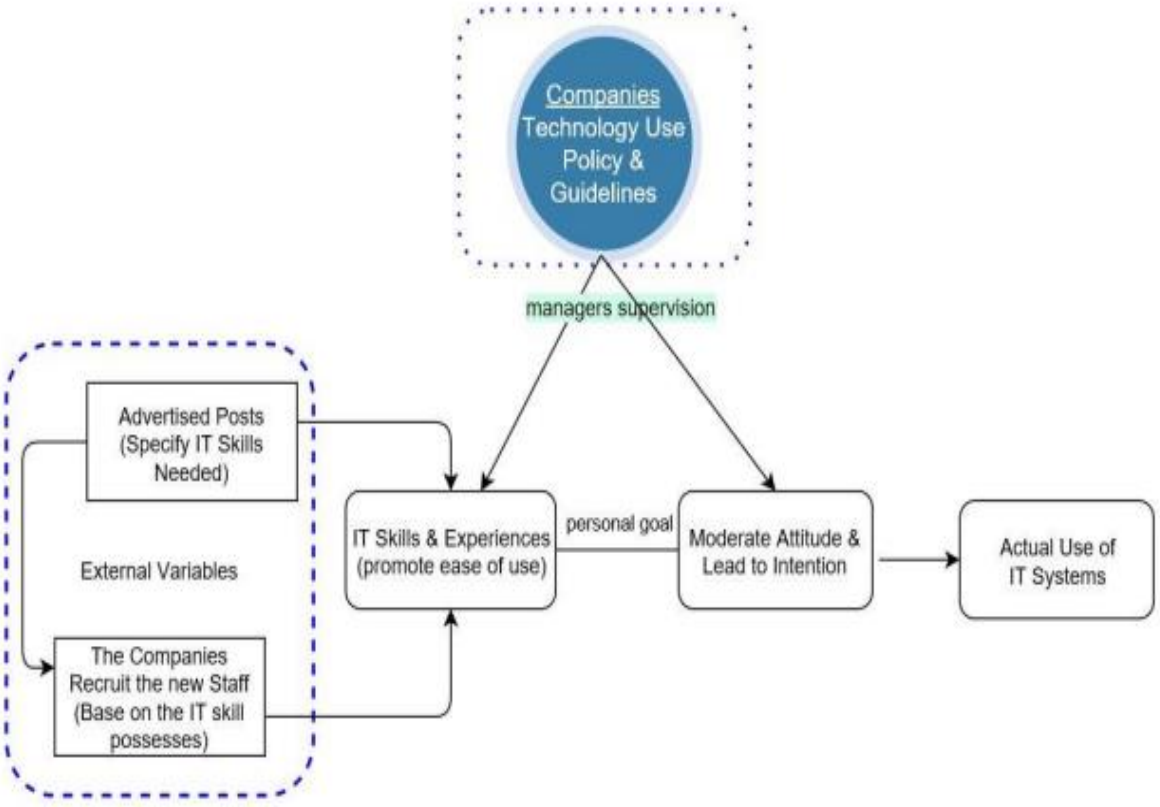

Figure 5: Technology Acceptance and Use Model (TAUM) proposed by Ajibade (2018)

In order to suit the circumstances of the adoption of various technologies, TAM went through a series of adjustments during the years 2000, 2008 and 2018 (Tripathi 2017:128). Although TAUM embeds most of TAM constructs, this study argued that TAUM was designed for general in-house technologies or locally installed systems used in organisations or institutions, as TAUM did not consider the ubiquity of LSPs, which are cloud-based systems this study was about. This study also continued to contest that TAM observes computer competencies which might infuse or mean IT skill, meaning that TAUM became specific, yet the elements were similar to those of TAM. However, this study incorporated the institutional policy and guidelines use, IT skills and manager's supervision from TAUM to add to TAM constructs as suggested by Ajibade (2018). This combination brought TAM to a further extension.

3.4.4 Combined technology acceptance models for the study

This study proposed to use the combined models to form the ITAUM below:

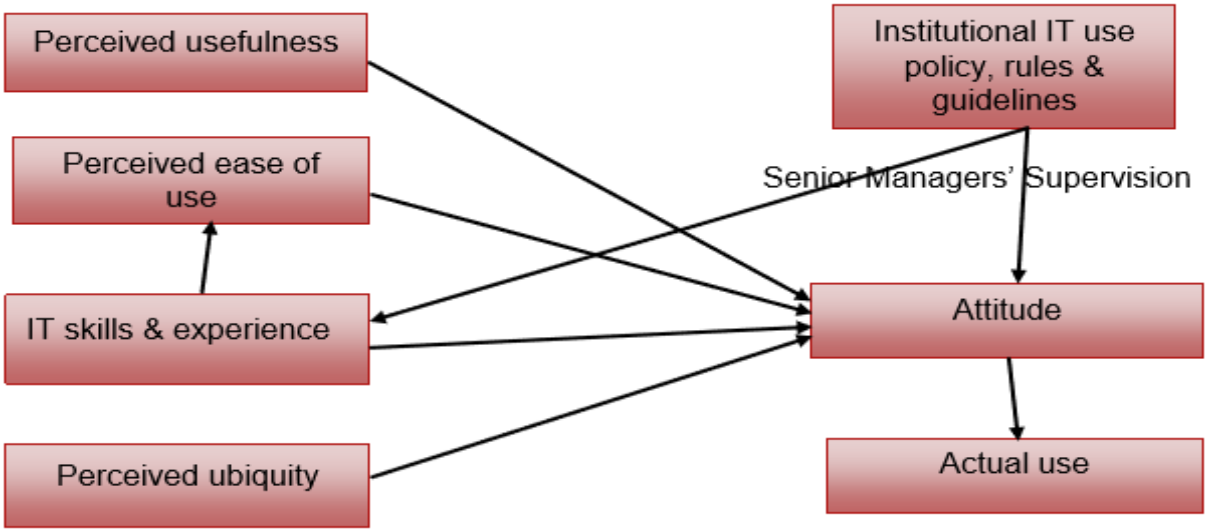

Figure 6: Integrated Technology Acceptance and use Model (ITAUM) proposed by this study

From the three frameworks this study discussed earlier, TAM (Davis 1989), Extended TAM (Tripathi 2017), and TAUM (Ajibade 2018), this study developed an integrated technology acceptance and use model ITAUM, as a conceptual framework. Extended TAM is an improvement on TAM developed to overcome the drawbacks of TAM and assist scholars to use TAM in institutional context (Ajibade 2018). The theoretical extension of the TRA of Davis (1989) has been commonly used to explain a person's adoption of an information system/information technology (Weeransinghe & Hindagolla 2017:1). TAM integrates critical determinants of technology adoption, PEOU, PU, ubiquity (mobility and accessibility) and personal traits, which include self-efficacy and willingness to try the new system. Moreover, the behavioural intention to use cloud computing is determined by numerous constructs of TAM, such as individual attributes and computer literacy (Aharony 2015:319).

Ajibade (2018) argues that TAM is misleading, as it examines behavioural intention and interpersonal influence of users based on a subjective view, and it does not address the utilisation of technology in the situation of universities, businesses or organisations. Ajibade (2018) continues to argue that individual employees are influenced by mandatory directives/orders from their managers to use technology, based on their IT skills and experience, goals and institutional IT policy/rules, and recommends the TAUM for library and information science (LIS) studies.

Based on the ITAUM, external attributes of technology affect the main cognitive assumptions, such as perceived usefulness (the extent to which users expect that technology can enhance

their performance in the workplace). Perceived ease of use is the level to which users assume that a certain technology will be free of effort, which determine the users' attitudes (perceptions about technology during the actual use) and their intention (the cognitive state of users to use a particular technology) (Davis in Park & Kwon 2016:356).

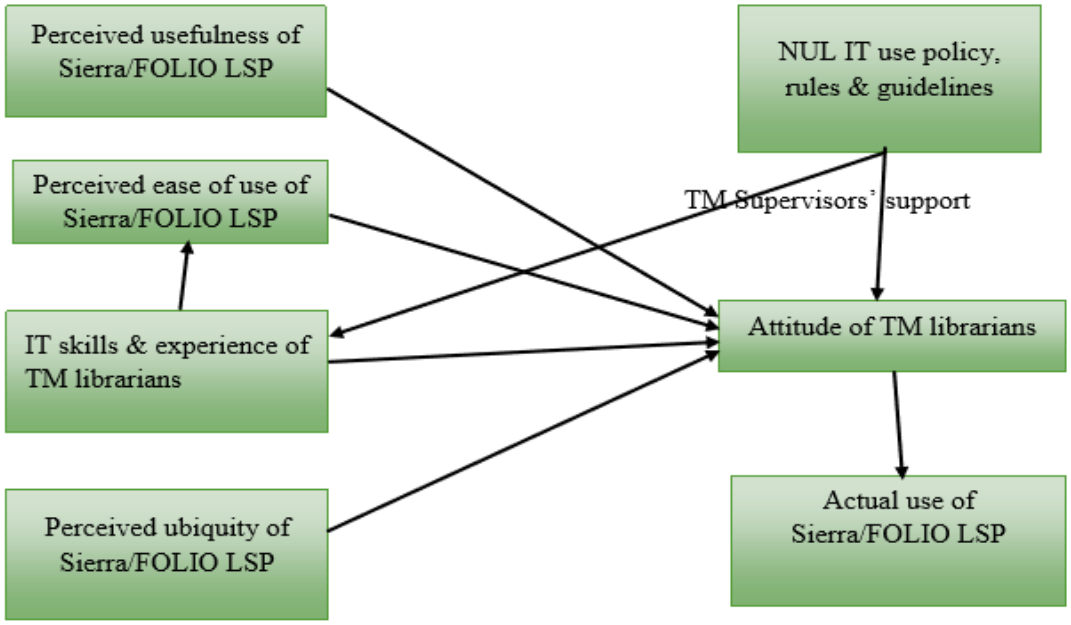

Figure 7: ITAUM in the context of TM Library

3.4.5 ITAUM in the context of TM Library

Looking at the diagram depicting the ITAUM in the context of TM Library, it can be seen that perceived ubiquity and perceived usefulness of Sierra LSP positively influence the attitude of TM librarians to use Sierra LSP. Yuvaraj (2016:268) confirms that the acceptance of cloud applications in libraries is mostly driven by views of its perceived usefulness, perceived ease of use and ubiquitous accessibly. Similarly, IT skills and experience influence ease of use of Sierra LSP, and the ease of use, in turn, promotes the perceived usefulness that motivates the TM librarians' attitude to use Sierra LSP, while TM Library policy, rules and IT guidelines motivate the attitude of TM librarians to use Sierra LSP under the supervision of senior librarians. Ajibade (2018:2) posits that job requirements for librarians frequently involve IT skills, experience and knowledge of Sierra LSP and Millennium architecture. In that case, the actual hiring process and confirmation of the position also signify the employee's consent to accept and utilise technology. Therefore, in this instance, the use of technology is based on construct IT skills and experience as moderating determinants that influence user's attitude,

intention and actual use of technology (Ajibade 2018). As stated by Liu (2021:44), academic libraries struggle to provide users with resources that are not only appropriate, but also suitable to their preferences, hence a need for university librarians to strengthen their ICT skills and digital abilities to effectively engage in the management of online resources and services (Akintonde & Awujoola 2022:1). Furthermore, in order for these librarians to comprehend and make use of new technology apps and services, they need to expand their understanding of contemporary metadata formats and web languages (Khan & Bhatti 2017). As a result, and regardless of job positions, academic library staff are required to have technology self-efficacy for their daily operations (Chalifour & Cmor 2020:3). Without this self-efficacy, it may be impossible for the library staff to catch up with technology trends and confidently serve students (Chalifour & Cmor 2020).

3.4.6 Integration of ITAUM to this case study

With the assumption that emerging technologies enhance accessibility of resources and services in libraries, this study assessed the perceptions of TM librarians who often use Sierra for their core processes (e.g. acquisition, cataloguing, serials, archives, institutional repository, circulation, reference services, etc.). Like in other libraries, frequent change of automation systems at TM creates problems and, therefore, it is important for academic libraries to keep up with technology advances, and implement ICT policies (Farid et al. 2023:11-12). Even worse, this researcher posed enquiries and discovered that these changes were made without any documented reason, as the systems were never tested at TM Library, while Tripathi (2017:126) suggests that institutions should assess the advantages and general effectiveness of cloud computing platforms after deployment. However, the key challenge is a lack of modern IT infrastructure and non-existence of formal knowledge sharing practices among TM librarians (Nkuebe 2016; Tseole 2016; Sejane 2017). Following the conceptual framework for this study, a well-established IT infrastructure was determined by a set of constructs, such as IT skill, ubiquity of the library system, supervisors' support, ease of use of the system, usefulness of the system and institutional IT use policy (Tripathi 2017; Ajibade 2018). It is for this reason that Ajibade (2018:8) created an improved model of TAUM for LIS and social sciences enquiries. TAM also lacks a diffusion of IT. Employees' IT skills and experience influence ease of use of technology, while technology adoption and intention to use are motivated by institutional rules, policies and IT guidelines. A very important aspect is senior librarians' IT skills, provisioned with organisational culture to train staff, update the IT

knowledge and competency to use the new system (e.g. although there are resemblances in the architecture of Millennium and Sierra, when the university library moves data from Millennium to Sierra, the circulation librarian updates staff's IT skills during circulation).

The conceptual framework this study adopted was the blueprint that guided the researcher throughout the study (Fessenden 2017). Citing either Figure 7, ITAUM shows that the said constructs can influence the behavioural intention positively or negatively (Drew & Alharbi 2014:143). ITAUM is also considered appropriate for this study because it stipulates technology characteristics that will determine TM librarians' adoption of a new web-based system (Tripathi 2017). This researcher modified ETAM by removing perceived risk because it has a negative impact on the adoption and use of implemented systems (Tripathi 2017), and introduced IT policy, rules and regulations, IT skills, as well as supervisors' assistance. Therefore, the study remained with the key constructs of ITAUM as PU, which reflects productivity and effectiveness of the system users, and PEOU, which allowed the researcher to assess the system centred on the concept of the system being easy to understand and user-friendly, which implies a positive attitude of TM librarians to adopt a new system (Hsiao & Tang 2014).

A conceptual framework is centred on ITAUM comprised of the determinants of technology adoption, such as PEOU and PU, perceived risk/security, perceived cost, self-efficacy and novelty seeking (Hsiao 2014; Tripathi 2017). While Yuvaraj (2016:17) suggests that libraries need well-stipulated regulations and transparent policies so that they can embrace cloud computing systems. TAUM incorporates external factors such as job advertisement, specifying that the institution's needs, IT skills and experiences, and directives are guided by IT regulations and policies from managers as features that motivate the successful implementation of new technologies in the work environment (Ajibade 2018).

3.5 Summary

Through the use of a framework that would address the study objectives, this chapter aimed at uncovering answers for the study objectives. The analytical framework used in the technology acceptance studies is outlined in this chapter. It offers the scholarly state-of-the-art in the area of technology adoption that has been reviewed. The fundamental conceptual foundation for this investigation is then defined and discussed. Notably, the constructs used to forecast the TM Library's degree of technology adoption. Lastly, the relevant frameworks are sketched out,

and discussed in accordance to how they advanced to predict the extent of LSP adoption at TM Library.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Introduction

The previous chapter presented the conceptual framework for the study. This chapter discusses the research methodology deployed to address the research questions of this study. According to King, Horrocks and Brooks (2019:307), methods refer to the tactics researchers use to gather and analyse data, while methodology is the entire approach to research that encompasses the philosophical assumptions, theoretical perspectives and the topic of interest in a specific study. For this study, the research methodology entailed research paradigm, research approach, research design, data collection and analysis, study population and ethical considerations.

This study attempted to understand the adoption and use of LSPs by librarians at the NUL library through the use of qualitative data collection methods of document review and face-to-face interviews. The aim was to gather the in-depth perceptions of TM librarians towards the adoption and use of the implemented LSPs. The research design for this study followed an interpretive case study based on the theoretical assumption of interpretive paradigm. According to Wright (in Bryman & Bell 2015:29-30), interpretivism is one of epistemological positions that defines the theory and method of interpreting human action. An interpretive paradigm transforms the case being studied, questioning the type of inquiry and problem, data collection methods, data analysis, reporting, evaluation and the use of knowledge to change the situation that is being probed (Creswell 2018). The current researcher, as an interpretivist, believed that knowledge and meaning are ways of interpretation.

4.2 Research paradigms

A paradigm is a worldview through which meaning is presented: A research approach that involves use of a particular set of presiding principles on ontology, epistemology and methodology (Hennink et al. 2020:329). Hennink et al. (2020) continue to emphasise that paradigms are the overarching statements to which researchers subscribe when they engage in any inquiry. A paradigm is a worldview or a set of philosophical assumptions encapsulated in the interpretative paradigm used by qualitative researchers (Creswell 2013:22). A paradigm can be conceived as a guiding framework for theory and research that entails basic assumptions, fundamental issues, models of quality research, and methods for searching answers for the research question/hypothesis (Neuman 2014:96).

4.2.1 Components of research paradigm

According to Hennink et al. (2020), a paradigm is the lens through which people see the reality, which involves a particular set of regulating philosophies on ontology, epistemology and methodology. Figure 8 depicts the interconnection of the three components of a research paradigm.

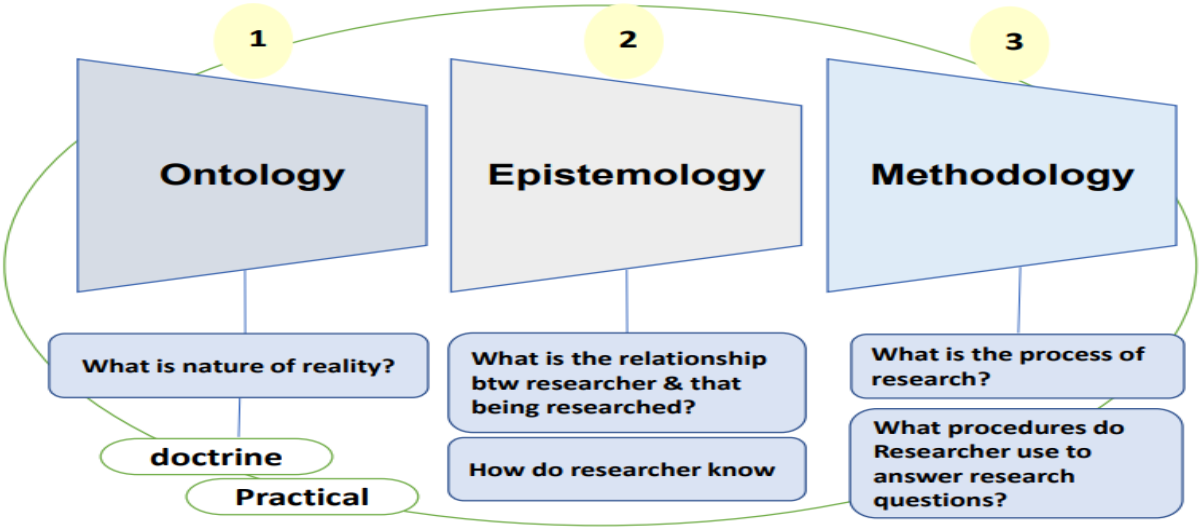

Figure 8: Components of research paradigm adapted from Al Ahmadi (2019)

As depicted in Figure 8, Al Ahmadi (2019) presents a research paradigm as a comprehensive system of interconnected practices and thinking that governs the nature of an investigation along ontology, epistemology and methodology. Antwi and Hamza (2015:223) confirm that a study of any kind has an underlying structure or framework that comprises assumptions about our understanding of reality and the world (ontology), the doctrine of what is known that guides the investigation (epistemology), and the process through which the insight is obtained (methodology). These three components led to the variations in the types of research methodologies utilised in the field of social science (Antwi & Hamza 2015). Vakkari (2024), on the other hand, suggest that it is important for LIS scholars to observe the philosophical aspects of research because they are embedded in the methodology and methods selected by the researcher. Ontological and epistemological components are concerned with individuals' worldview, which has a substantial effect on the perceived relative value of various parts of reality (Al Ahmadi 2019).

4.2.2 Ontology

As depicted in Figure 8, ontology is the study of existence or the basic essence of things (Liamputtong 2020). According to this study's participants, the reality was subjective and multifaceted when it comes to ontology, and this researcher directly interacted with the participants (Antwi & Hamza 2015).

4.2.3 Epistemology

As indicated in Figure 8, the word 'epistemology' comes from a Greek word 'epistêmê' which means knowledge and how it can be constructed (Myers 2013:36). Conducting qualitative research with an epistemological premise entails trying to get as close as possible to the persons being examined and examining subjective evidence based on each person's viewpoints (Creswell 2013; Creswell 2018). Epistemology is concerned with the relationship between the researcher and the case under study, including how the researcher generates knowledge (Al Ahmadi 2019). That is, relative to the research object, whether the researcher considers him-/herself as an objective observer outside of the research subject (which could lead to realism/positivism) or whether the researcher is part of the research subject (which is where interpretivism/constructivism comes into play). If the researcher believes that reality is outside and independent of the researcher, the only way of knowing epistemologically is for the researcher to relate with the research subject and avoid being contaminated or contaminating the truth. In this case, this researcher was in contact with TM sectional librarians prior to interviews until the end of self-administered interviews, and analysed the findings based on the outcome of the interviews.

This chapter discusses the philosophical assumptions and research designs underpinning this study. Among the reviewed philosophical assumptions, the researcher identified the interpretive paradigm as the framework for this study because the researcher aimed to consolidate perceptions of TM librarians with regard to the new Sierra System. Creswell (2018:5) informed this study in his statement that the interpretive researcher assumes that while individuals are interacting with others, they construct and bring along their subjective meanings of the situation they experience. That is why researchers rely heavily on the meaning participants assign to the situation to get a common understanding of the reality (Hennink et al. 2020). That is, the interpretive paradigm understands the situation through the meaning that participants assign to it. Moreover, the interpretivism paradigm is a distinctive approach to

qualitative inquiry, which generates theory by nature (Creswell 2013:45). This chapter also discusses research strategy, research design, targeted population, data collection instruments, data analysis, data trustworthiness and ethical consideration.

As opposed to either quantitative or mixed methods approaches, this study explicitly followed a qualitative approach with semi-structured interviews to explore, describe and interpret the perceptions of TM librarians towards the adoption of new Sierra LSP. This qualitative study used document analysis and face-to-face interviews as the primary data collection method to solicit views from TM librarians. Data collection instruments predominantly included this researcher herself (Tracy 2013:89), document analysis, literature review, and semi-structured interviews (Creswell 2018:185) with TM librarians with the necessary occupations, qualifications and skills who used Sierra LSP. Furthermore, the justification for the selected data collection methods is discussed. In order to maintain trustworthiness for this research, appropriate criteria for qualitative research are discussed. The methodology also engaged a theoretical framework that was in line with interpretive research paradigm for this study. Ngulube (2020:387) and Creswell (2018:6) confirm that philosophies within which the researcher can position their studies include the positivist paradigm, the interpretivism paradigm, and the pragmatist paradigm.

4.2.4 Interpretivism

Interpretivism was ideal for this qualitative case study because Creswell (2014) lists the benefits of interpretive approach as the following: interpretive research is inductive (it generates theory); researchers are able to access reality, as the inquiry takes place at the contextual settings; interpretive research provides the in-depth understanding of the reality and it allows for the extraction of multiple views.

4.2.5 Positivism worldview

The positivism assumptions served as representation for a conventional research design as they are more suitable for quantitative research than qualitative research (Creswell 2014:7). Positivists use a deterministic approach to do enquiries, where causes most likely dictate consequences or findings, meaning the problem that the positivist investigated, reflects the necessity to discover and analyse the factors that affect results, such as those revealed in experiments (Creswell 2018:6). As indicated by Liamputtong (2020), qualitative researchers

argue that meanings and interpretations cannot be quantified in the same way that physical aspects can.

4.2.6 Pragmatism worldview

The pragmatism worldview is a viewpoint that emerges from acts, circumstances and results rather than contextual factors (like in postpositivism). Instead of focusing on methodologies, researchers concentrate on the study problem and apply all possible approaches to comprehend the problem (Creswell 2018:249).

4.3 Interpretive research paradigm as a choice for this study

Since this was a qualitative study, it explored how people experienced and interacted with their social world, and the logic was based on an interpretive lens infused in the qualitative approach (Merriam & Grenier 2019:4). That is, the researcher is assumed to be an instrument, while data analysis is inductive and findings are descriptive (Merriam & Grenier 2019:7). The interpretive paradigm is explained as an approach for investigating human life, experience or actions (Schwandt 2015).

This study chose an interpretive paradigm, which assumed that there would be a valid outcome and the researcher would apply informed judgement to support or argue such outcome. Moreover, the interpretive paradigm allowed this study to gain knowledge of the performance of LSPs at the perspective of TM librarians. Since this study was interpretive, it extracted its construct from the in-depth examination of the situation at TM Library. This researcher, as an interpretivist, believed that knowledge and meaning are ways of interpretation. The interpretive paradigm is underpinned by the collection of information about predictors of successful acceptance and continued use of Sierra LSP at TM Library Services. The interpretive paradigm accommodates emergent views during interviews and analyses of text (Creswell 2013:36).

According to Wright (in Bryman & Bell 2015:29-30), interpretivism is one of epistemological positions that defines the theory and method of interpreting human action. Neuman (2014:84) describes an interpretative study as a type of research that seeks theoretical explanation of an incidence, how it works and how it is expressed in socially constructed meanings and a subjective worldview. An interpretive paradigm transforms the case being studied, questioning the type of inquiry and problem, data collection methods, data analysis, reporting, evaluation and the use of knowledge to change the situation being probed (Creswell 2013). This implies

that methodology addresses the research question through the proper research design, sampling and data analysis guided by study paradigm (Bryman 2016).

4.4 Methodology

Research methodology is the manner in which researchers address the research problem and seek answers (Taylor, Bogdam & DeVault 2016:3). Assumptions, interests, theory, perspectives and purpose guide the researcher's choice of methodology (Taylor et al. 2016:3). Methodology is a set of principles that direct how new evidence has been acquired (Hennink et al. 2020:328). Research methods include types of data collection, analysis and interpretation proposed by researchers (Creswell 2014:247), while methodology involves research methods and techniques applied to collect and analyse data (Flick 2018). Flick (2018) continues to confirm that methodology involves research methods and techniques applied to collect and analyse data.

As indicated by Creswell (2014:246), qualitative interviews allow the researcher to collect data through face-to-face interviews, telephone interviews, and online interview or focus group interviews of six to eight participants. Furthermore, researchers use open-ended questions to solicit views and opinions of interviewees (Creswell, 2014).

4.4.1 Research approach

The term 'research approach' refers to a strategy and procedure for conducting research, covering everything from general hypotheses to specific techniques for gathering and analysing data. Research approach entails the fusion of philosophical assumptions, designs, and particular methods (Creswell 2018:250). The aim of this study was to explore the factors that led to the adoption and use of the LSPs at TM library for the purpose of suggesting guidelines for successful adoption and continued use of such platforms. This was equally achieved by exploring the functionalities of Sierra towards its purported functionality at TM Library Services. This section introduces the research methods that the study used, which included data collection methods, literature review, population, data analysis methods, validity and reliability of the study, as well as ethical declaration.

The three fundamental research approaches are qualitative, quantitative and mixed methods research (Creswell 2014:11-12), while the types of qualitative research are narrative research, phenomenological research, grounded theory, action research, case study, ethnographic

research, historical research and document analysis (Mohajan 2018). Among the three research approaches, this study took a qualitative case study approach as further discussed hereafter.

4.4.2 Qualitative research

Qualitative research is an approach to determining the significance that people or groups give to social or human situation, and it entails emergence of questions and procedures, gathering data from the participants' natural settings, inductively analysing data from participants to broader themes; and creating interpretations of data (Creswell 2018:250). There is a considerable difference between qualitative and quantitative research methods (Hennink et al. 2020). Interpretivism and positivism are the fundamental paradigms of qualitative and quantitative research, respectively, and the notions of the interpretive paradigm inform qualitative research, while the assumptions acquired from the positivist paradigm inform quantitative research (Hennink et al. 2020:16). By analysing the correlation between constructs, quantitative research can be used to test objective theories (Creswell 2018). These quantitative constructs can be quantified, often using instruments, allowing for numeric data to be statistically analysed, while the quantitative report follows a predetermined format that includes an introduction, literature and theory review, methodology, findings and discussion (Creswell 2018:250). Qualitative research, on the other hand, is a broad term that entails a wide range of techniques and philosophies (Hennink et al. 2020:10). Furthermore, quantitative research takes a positivist paradigm, while a qualitative inquiry follows the interpretive paradigm (Hennink et al. 2020:329).

4.4.2.1 Advantages and disadvantages of qualitative research

Additional reasons this study engaged qualitative research included the following: qualitative research is inductive: it develops thoughts, and knowledge from ITAUM as a framework for this study, instead of gathering data to test predetermined models, hypotheses, or theories. Qualitative researchers are curious about how individuals perceive and act in their daily lives; and the final report of qualitative research has a flexible writing structure. However, qualitative research have some shortcomings. Qualitative studies have small sample size that might render conclusions that are inaccurate and ungeneralisable. Moreover, it takes effort to create trust with participants so that they fully and honestly express themselves; and some participants might have been already manipulated, affecting the outcome of the study (Creswell 2013:36; Taylor et al. 2016:8; Rahman 2017:108; Creswell 2018:250; Flick 2018:17; Hennink et al.

2020:10). In the case of this study, this may not be a problem, as the study does not intend to generalise beyond TM or NUL.

4.4.3 Research design

This qualitative research used a case study design. Research design is a kind of plan within qualitative, quantitative and mixed methods research (Creswell 2018:250). For instance, qualitative researchers plan and perform their investigations with considerable thinking, as qualitative inquiries involve some mixture of theoretical assertions and empirical evidence to produce an argument that addresses the problem at hand (Schwandt 2015:273). Other explanations state that a research design is a systematic plan of a research project that includes sampling or whom to involve as participants (Flick 2018:159). The research design sets out the methodology to be followed in the qualitative, quantitative or mixed methods approaches (Creswell, 2014:247). Considering that new primary data are needed, the research design looks at the data to address the research question (Ritchie et al. 2014:53). Research design is a projected plan that ranges from a general topic to a targeted research question as the focal point of study. It sets out the methodology to be followed in a qualitative, quantitative or mixed methods approach (Creswell 2014:247). The practical designs for conducting a qualitative inquiry include a narrative research, phenomenological research, grounded theory research, ethnographic research and case study research (Creswell 2018:12). For this study, the researcher followed a case study design that was analysed through qualitative methods. Since this study was interpretive in nature, it extracted its construct from the in-depth examination of the views of librarians at TM Library.

4.4.3.1 Case study and its advantages

This was a qualitative case study, which is defined as a design in which researchers investigate a programme, event, process or individual or a group of individuals in detail (Creswell 2018). The current researcher investigated the adoption and use of Sierra LSP by TM librarians. This research chose a qualitative case study design for the following reasons: qualitative case studies relate to quality and aims to understand the meaning of human behaviour (Schwandt 2015:256-257). With a qualitative case study, the researcher is able to understand the meaning and intentions of the individuals that are being investigated (Myers 2013:40-41); qualitative case studies allow for the exploration of in-depth attitudes through a variety of data collection methods (Creswell 2014:241) and a case study does not impose specific techniques for data

gathering or analysis. Rather, the data in a case study are gathered using a variety of methods, including direct observation, document analysis, interviews, and archival records; case studies allow triangulation of methods. A case study uses 'what', 'how' and 'why' questions to extract the rich and justifiable information from participants; case study research investigates the case in its natural settings; case studies understand interviewees' perspectives and stories; and case studies are detailed and comprehensive (Yin 2009; Myers 2013:82-83; Creswell 2018; Tracy 2020:7).

4.4.3.2 Disadvantages of case studies

Although this study opted for a case study design, case studies are hounded by time and action, and researchers collect extensive data throughout a limited time, using a number of data gathering approaches (Creswell 2018:247). In emergent situations, like when the organisation being studied is abruptly acquired by another corporation midway through the investigation, the researcher has very little control over such circumstances. Novice researchers may find it challenging to concentrate on the most crucial issues since they may belief that everything is pertinent. The quantity and complexity of collected data make it susceptible to many interpretations and possible researcher bias, and make it susceptible to many interpretations and possible researcher bias (Yin 2009; Myers 2013:82-83; Creswell 2018; Tracy 2020:7).

4.4.3.3 Characteristics of case study

This study further used a case study design because of the following characteristics that Creswell (2013:98-99); Creswell (2014:14, 185-186) listed:

- case study features allowed the researcher to share the scenario used or problem of TM Library with the aim of proposing a guideline for the successful adoption and continued use of Sierra LSP at TM Library;
- the case study also allowed this researcher to triangulate data collection methods in order to extract rich data and inductive results;
- the literature confirmed that case studies start with the identification of a problem under study (e.g. individual, company, entity, a group of entities), and a description and in-depth explanation of a phenomenon;
- case study enables the researcher to arrange the themes chronologically;

- A case study is one of the approaches used to do evaluative qualitative inquiry whereby a researcher conducts an in-depth assessment of a programme, event, setting, activity, process or individuals;
- researchers gather comprehensive data with multiple collection tools over a stated period of time and then lists the characteristics of qualitative research as the following: emergent design (the qualitative design is not rigid);
    - researcher is a major tool for data collection (this study was interpretive and gathered data from direct interaction with the phenomenon being studied);
    - reflexivity, which implies consideration of participants' background and their role in this study.

4.4.3.4 TM Library as a case

This study was done in Lesotho, at the main library of the National University of Lesotho. TM Library had five branch libraries, but they were excluded from the study, and TM Library, as the main campus library, was the focus of this study. TM Library was located in Roma, in the district of Maseru, and had an archives section, where archival material/institutional repository was located. For this study, TM Library was a case this researcher wanted to study because:

- it was a well-known university library in Lesotho;
- it was a hub for library professionals who could easily understand the usefulness of this study and the language of virtual library services platforms;
- it was the first library to implement Sierra LSP, and this platform has not been tested for its acceptance and usage;
- it was perceived as the mother body of all academic libraries in Lesotho;
- it had a high enrolment of students and a number of library users who were technology savvy;
- it was an example for all consortium libraries in Lesotho, and there was a possibility that the results of this study might entice academic libraries and other libraries of Lesotho to implement LSPs;
- the results of this study might influence TM librarians to continuously update their IT skills in order to be abreast with technology trends, and enhance performance.

4.4.4 Data collection

For this study, the researcher gathered primary data through semi-structured face-to-face interviews conducted with TM librarians to solicit their views. The collected data were presented and interpreted in topics, while findings were presented in categories of themes. This was done to understand the study participant's subjective perspectives of Sierra LSP, instead of developing generalisable conceptions of a large group of people (King et al. 2019). Interviews can be conducted physically face to face, telephonically, via the internet (e.g. through Microsoft Teams or Skype), email or online massaging (Merriam & Grenier 2019:14). This researcher further made use of an interview guide and triangulation for gathering data at TM Library.

4.4.4.1 Data collection instruments

This section discusses the data gathering tools used in this study, which included semi-structured interview guide, face-to-face interviews and documents, to carry out a thorough analysis of the factors that influenced the adoption and use of Sierra LSP at TM Library.

4.4.4.2 Semi-structured interview guide

This section discusses the demographic data of participants and the interview guide. The participants' demographic data was information collected according to the attributes of the intended group of individuals who were willing to participate in a research study (QuestionPro 2023). The purpose of demographic research questions being to provide the researcher with the background information of the participants in the study (QuestionPro 2023). Similarly, this study needed demographic data of TM librarians to gain access to the information pertaining their professional qualifications, experience and their awareness of the implemented LSPs. Qualification helped this study to choose the potential informants, who would understand the study terminologies better. Knowing the qualifications of TM librarians also assisted this study to establish the level of IT/ICT proficiency TM librarians. As a result, this researcher developed an interview guide for TM librarians. The interview guide outlined objectives that were divided into questions and sub-questions, as demographic inquiries were based on TM librarians' years of experience and qualifications. The researcher used this type of question to understand how far TM Library was capacitated to use Sierra/FOLIO, and to align the questions with the study objectives that were drawn from the conceptual framework of this study.

The researcher developed a semi-structured interview guide that listed interview questions with their sub-divisions to explore the level of Sierra LSP adoption at TM Library. According to Schwandt (2015:171), interviews are classified as structured and semi-structured interviews. Structured interviews are rigidly organised, and are suited for comparing data across large groups using an interview schedule with a set of standard questions, while semi-structured interviews are more fluid and spontaneous in character (Tracy 2020:158). Schwandt (2015:171) continues to emphasise that semi-structured interviews are in-depth interviews aimed at eliciting stories of experience from interviewees. Semi-structured interviews motivate interviewers to listen, reflect and adjust to the changing situations, as well as maintaining control of the conversations throughout the interviews (Tracy 2020:158). Semi-structured interviews are valued for the consistency of covering the same topics in each interview (Bernard 2013). An interview guide, on the other hand, is a written set of questions and themes that need to be addressed in a specific order (Bernard 2013:181).

The interview guide was drafted with a record of all the questions that align with the objectives of this study (see Appendix VI on pages 199-201). The first objective assesses the extent to which TM librarians have adopted the library services platforms since 2016 to January 2023 when they implemented FOLIO. Under this objective, the study sought to establish the extent to which TM librarians had adopted and used the library services platform from 2016 to 2023 when they migrated to FOLIO LSP.

The second objective was meant to discover the factors that have influenced the adoption of FOLIO LSP by TM librarians, the question being what are the factors that have influenced the adoption and use of FOLIO LSP by TM librarians? To address this question, ITAUM used as a criteria determine the factors that motivated the adoption and use of LSPs at TM. It is for this reason that the interview guide is containing the questions that are based on the constructs of ITAUM. These constructs include IT skills and experience, supervisor support, institutional IT use policy/rules, perceived usefulness, ease of use, perceived ubiquity, and attitude.

The third objective recommends a guideline for the successful adoption and continued use of LSP at TM. The question for this objective said: what are the possible recommendations for the successful adoption and continued use of LSP at TM? This was aimed at suggesting a useful blue print for the successful adoption and use of LSP for TM and other libraries.

4.4.4.3 Data collection procedure

Procedurally, this researcher called the TM librarians to remind the participant of the delay in data collection and to justify it, as this study was disrupted by the COVID-19 lockdown and its restrictions because NUL had long granted me permission to collect data (see Appendix II on page 193). Flick (2018:24) confirms that researcher must maintain good relationships with potential participants, gatekeepers and other prominent individuals who may help them to get access to the locations or participants in order to collect data from them. Similarly, Flick (2018:238) suggests that before starting an interview, the researcher must tell the participants what the purpose of the study is and obtain their informed consent before proceeding. Therefore, this researcher sought consent from the participants prior to the interviews so that she could conduct face-to-face interviews with them with the use of a semi-structured interview guide. After this, the researcher contacted potential participants by telephone and email to schedule convenient appointments for the interviews.

This researcher conducted the semi-structured interviews with TM librarians during February 2023. During these interviews, this researcher retained flexibility by developing a dialogue based on the interviewees' replies, responding to assertions made by interviewees, and posing follow-up questions or new questions to gather more facts (Schwandt 2015:171-172; Creswell 2018). This researcher also engaged the use of telephone calls for clarity and follow-up questioning when reading interview responses and reading unclear field notes. Data collection predominantly included seeking the consent of participants as a procedure through which researchers advise prospective participants about the advantages, risks and other implications of volunteering to take part in a research study before they commit to do so on their own free will (Tracy 2013:104).

Face-to-face interviews also gave this researcher the flexibility to ask follow-up questions. With face-to-face interviews, the participants have the freedom to relay additional views in cases where the researcher did not ask. It is a convenient way of data collection for reserved or non-vocal participants (Bernard 2013:182; Dixon & Singleton 2013:243; Corbin & Strauss 2015:39). However, like any other data collection instrument, interviews have some strengths and weaknesses. Face-to-face interviews offer indirect information that has been sifted by interviewers' perspectives; in order to conduct interviews, researchers must get access to the study location and contact possible volunteers they have never met; and starting off might be

difficult for a researcher who is shy or does not like making phone calls to pose follow-up questions.

4.4.4.4 Triangulation

Triangulation is a process in which investigators employ different types and sources of data, different methods of data collection, different theoretical frameworks and several investigators (Tracy 2013:63; Carter, Bryant-Lukosius, DiCenso, Blythe & Neville 2014:545-546). Several forms of triangulation exist, such as triangulation of methods, which is looking at the consistency of findings produced by various data gathering methods; triangulation of sources, which implies studying the consistency of various data sources within the same method; analyst triangulation using a number of analysts to assess the results; and theory/perspective triangulation by applying viewpoints or theories to interpret the data (Patton 1999:1193).

To achieve triangulation, the researcher developed a conceptual framework from a combination of three technology acceptance models to form ITAUM. Researchers also triangulate data sources by accessing information from diverse sources and using it to develop a logical rationale for themes (Creswell 2018). Following this explanation, this researcher obtained data from different sources, including interviews, field notes, and content analysis. Creswell (2018:200) further highlights that if themes are developed based on the convergence of many sources of data or viewpoints, the triangulation process can be considered to increase this study's validity.

4.4.4.5 Document analysis

In order to supplement the data gathered from the interviews, pertinent documents were reviewed. During an inquiry, the researcher may gather qualitative documents, such as public documents, which include newspapers, meeting minutes, official reports or private documents like personal notebooks and diaries (Creswell 2018:187). Print and electronic newspapers, official records from the TM Library website, theses/dissertations, abstracts and books accessed from the UNISA library, and books and journals from Google Scholar, SABINET, and Google search supported this study.

4.4.4.6 Advantages and disadvantages of document analysis

Creswell (2018:188) and Gadwal (2022:218) provide the following advantages and disadvantages of document analysis:

- it can be accessed at any time convenient for the researcher because it is a covert source of data;
- documents are ubiquitous, and available in a number of formats, rendering them convenient and dependable data sources;
- it saves time and money, as it a readily available source of information.

4.5 Population

"Population" is defined as the entire group of potential participants from which the researcher requires information and draws the sample (Neuman 2014:247) or a group of people from which a sample is drawn for a study (Liamputtong 2020). Given the case of TM Library, the population for this study included all TM librarians who might have had information about the implemented Sierra Platform. These presumed informants included management and librarians of TM library in the following sections: Acquisitions (2), Archives/Intuitional Repository (4), Cataloguing (5), Circulation (9), Documentation (1), Reference Services (1), Research Commons (1), e-Resources (1), and Systems (1). The TM Library management comprised the university librarian (1) and heads of the main sections (2), which are Information Resource Management (IRM) and Client Access, Training and User Support (CATUS), giving a total of 28. The head of IRM managed acquisition, cataloguing, IR (archives) and documentation of library materials, while the head of CATUS was responsible for circulation, reference and research commons.

Sierra LSP provides unified non-modular access to staff and clients in accordance with restrictions/security profiles of staff, while its predecessor (Millennium) segregated functionalities with separate modules for acquisitions, cataloguing, circulation, and serials, (Breeding 2015:31). At TM Library, some of the library positions have not yet been aligned to this current era of virtual automation. This was why the researcher interviewed TM staff in Acquisitions, Archives/IR, Cataloguing, Circulation, Documentation, Reference Services, Research Commons, Serials, and Systems.

4.6 Sampling procedure

This study chose purposive sampling because it allows the researcher to pick participants according to their relevance to the study (Creswell 2018). Purposive sampling is a technique used by qualitative investigators to identify participants who will most effectively aid in the understanding of the study's problem and questions Creswell 2018:229). Purposive sampling has the benefit of allowing researchers to make sure that they obtain information from individuals who are relevant to the study (Creswell 2018). Sampling is a process of choosing study participants from a larger population (Flick 2018:160), and most qualitative and quantitative social science inquiries include choosing just a sample from the study population (Hennink et al. 2020:92). The only difference is the approach of sampling, as each approach is directed by a distinct research paradigm, as quantitative uses probability sampling, qualitative follows non-probability/purposive sampling, convenience sampling, snowball, which is commonly used by investigators to find information-rich primary sources of data, and the sample grows as suggested sources keep emerging (Cresswell 2014).

The website was utilised to identify the members of the population. However, when this researcher contacted all the people in the population, some of them were not able to participate in this study. A sampling frame is a mechanism that a researcher uses to identify members of the population so that she/he can use it to select participants. (Schwandt 2015:277). For this study, people who would qualify should be full time employees of the NUL library who are employed at the TM Main Library, whose functions included interaction with LSPs during the time that the study was conducted. The sampling frame formally excluded TM archivists. This researcher further made a telephone call to the HR department to confirm the information on the website regarding vacancies of librarians, and discovered that all the posts had been filled and the updating of the library website was delayed.

Since a purposive sampling allows this researcher to interview management and librarians at TM Library according to their relevance to the study, this researcher attempted to interview all 28 librarians who qualified to be participants in this study. However, some of the librarian could not be part of this study, leaving a total of 24 participants. This study also excluded the archival services because the focus was on the adoption and use of Sierra/FOLIO LSP from the perspective of TM librarians who were using Sierra and TM archivists who were using DSpace to digitise archival records.

Table 3: Sample of the study

	Number of Participants per Section	Library Management	Librarians	Library Assistants	Access Assistants	**Total Participants**
		4	5	1	7	**17**
Acquisitions	1					
Cataloguing	2					
Circulation	8					
Documentation	1					
E-resources	1					
Systems	1					
TM Library management	3					
Total Participants	**17**					

These groups were in a better position to respond to interview questions because of the following:

- TM Library management was in a better position to understand virtual automation and the factors that led to the implementation of Sierra LSP in TM Library, as they were involved in the selection and acquisition of library systems.
- TM Library management team had knowledge silo of TM Library and decision makers who monitored the library budget, approved requisitions, influenced the NUL management to support the implementation of cloud-based Sierra, and could relate their perceptions to the performance of Sierra in support of teaching, learning and research.

- It was through this management that the study attempted to determine whether TM librarians possessed the requisite skills to use and benefit from their new cloud-based Sierra.
- Heads of sections moderated the usage of Sierra at TM Library, and could yield relevant information regarding the benefits and challenges of using Sierra.
- The head of information resource management for acquisitions, cataloguing, circulation, client-services, and reference librarians who were using Sierra for their routine operations could provide inspiring lessons and describe the performance of the system better.
- Heads of sections maintained and monitored the performance of the Sierra Platform and could provide useful insights into the success and flaws of the newly implemented Sierra.
- This researcher also assumed that TM senior librarians working in sections such as acquisitions, client services, and others used Sierra LSP often, and their perceptions about the performance of this LSP could be useful for the study. The reason behind this assumption was the fact that senior librarians were supervisors who monitored and supervised their subordinates to adjust to new systems and implementations. These librarians were also involved in the selection and acquisitions of library systems and collection.

4.7 Data analysis

Subsequently, thematic analysis was used to group the qualitative data from the document analysis and interview questions into research themes. Thematic analysis is the process of identifying themes in data by carefully reviewing and re-reading information (Liamputtong 2020). As opposed to the deductive technique of content analysis, this methodology is inductive, developing concepts and theories from the facts (Liamputtong 2020). Data analysis is the process of working with data: organising data, breaking data into manageable topics, coding data, synthesising data and seeking for patterns, as the aim of qualitative data analysis is to discover patterns, themes and meaning (Creswell 2014). The purpose of analysis in this research, as a qualitative case study, was to derive meaning through direct interpretation of secondary data, the researcher's observations and experience of NUL librarians with the Sierra LSP. Semi-structured interviews were conducted with TM librarians who often used Sierra LSP. From this, useful information that related to these librarians' experience with Sierra LSP

emerged. The individual responses were transcribed, categorised, analysed and interpreted to draw a meaningful theory and insights. As indicated by Flick (2018:126), there are many ways of analysing data, but coding and categorising are the most common for analysing collected data from interviews, focus groups and observations. Coding refers to the technique of organising data into sections or portions of information and designating a word or phrase to each portion to acquire a full understanding of it (Creswell 2018:247). This study used a thematic data analysis method in which the researcher followed the six steps suggested by Sanders and Scharp (2018:1-2):

- Acquaint with data;
- Form coding categories;
- Create themes;
- Review themes;
- Define themes;
- Label themes (determines what the individual theme bears and searches for compelling examples with evidence of the theme based on the research problem).

That is, this researcher first focused on data and then categorised data and re-constructed it in a more meaningful way. This categorisation helped the researcher to compare patterns and find contrasts between them. The researcher was also able to reflect deeply on particular patterns and complex threads, and made meaning from such data (Corbin & Strauss 2015:69). The goal was to create descriptive, multi-dimensional categories that revealed a preliminary framework for analysis. The new categories were very important, as qualitative analysis follows inductive analysis (Corbin & Strauss 2015).

Qualitative data are difficult to analyse because it is neither a mechanical nor a technical process; it needs the researcher's inductive reasoning, thinking and theorising (Taylor et al. 2016:168). Johnson, Adkins and Chauvin (2020:143) suggest that analysis of qualitative data engages manual methods or computer-assisted coding. This study followed the following thematic data analysis steps, as suggested by Creswell (2018:193-198) and Lester, Cho and Lochmiller (2020:98-101):

- This researcher engaged in data preparation and organisation, as qualitative fieldwork usually produces an extensive data corpus: hours of interviews, pages of observational notes and a myriad of documents extracted by the current researcher.

- The researcher became acquainted with data: the researcher familiarised herself with the data once she finished sorting and transcribing these data.
- The researcher used a memo: the current researcher used a note for examining data because it was beneficial to write a memo that captured immediate impressions about data, as well as any emerging views.
- The researcher coded the data: coding the data was a significant aspect of the thematic analysis process, and the code was a brief descriptive term or phrase that gave meaning to data that were relevant to this study's analytical objectives.
- The researcher shifted from codes to categories, then to themes: thematic analysis, in general, entails inductive contact with data. She moved from individual instances to general insights. This procedure incorporated the use of codes, creation of categories and, finally, the construction of themes.
- The researcher sorted the themes into three categories: the anticipated themes, the unexpected themes and the strange themes to ensure that the research outcome would represent different views.
- The researcher arranged the themes into a conceptual diagram that depicted the progression of ideas in the results section.
- The researcher drafted a summery for each theme that appears in the results sections of this study.

4.8 Ethical considerations

Ethical considerations are moral ideals that must govern the research, and are often articulated in codes of conduct and ethical review mechanisms (King et al. 2019:306). Ethical considerations are applied in all research processes in qualitative, quantitative and mixed methods research (Creswell 2018:90). Brinkmann and Kvale (2015:85-86) confirm that ethical consideration goes beyond the process of interviewing, as potential consideration is involved in every stage of the research up to the final write-up. Therefore, this study complied with the UNISA master's and doctoral policy and procedure document of 2019, accessed from UNISA website. Coding this UNISA master's and doctoral research policy, this study observed the following as ethical considerations: permission to collect data, data integrity, plagiarism, informed consent, privacy, confidentiality and anonymity. In general, UNISA urges researchers to comply with the following research ethics principles such as the following:

- importance and relevance of research; maximisation of public interest and social justice;
- researcher's competence, ability, accountability and commitment to research; respect and protection of the rights of participants and institutions;
- informed and non-coerced consent of participants;
- respect for cultural differences; fairness and objectivity; researchers should maintain integrity, transparency and accountability;
- non-exploitation of participants (UNISA 2013:9-10).

After obtaining the ethics certificate from the UNISA College of Human Sciences Research Ethics Review Committee (see Appendix III on page 194), this researcher wrote a formal letter asking for a permission from the University of Lesotho to collect data from TM librarians (see Appendix I on page 192). Then, NUL responded to the researcher's request, giving her permission to probe TM librarians (see Appendix II on page 193). This researcher also found it ethical to update the NUL about the data collection delay, which was caused by the COVID-19 lockdown. Prior to the interviews, this researcher pursued consent from potential participants by requesting them to sign a consent form and then contacted them to schedule appointments for interviews at a time that was convenient for them. This researcher also sought a permission from participants to record the face-to-face interviews. Hennink et al. (2020:78) posit that researchers can record interview sessions and later transcribe such recordings into a written form.

4.8.1 Informed consent

Informed consent is the procedure that takes place before data collection in which people are briefed about the objectives and importance of the study before being invited to participate in the study (Liamputtong 2020). It is an ethical rule guaranteeing that research subjects are aware of their participation in the study, and any possible hazards, and that they willingly consent to engage (Hennink et al. 2020:238). For the awareness sake, this researcher provided the participants with the participants' information sheet that supplemented the verbal description and aim of the study (see Appendix IV on pages 195-197). With informed consent, the key issue is 'knowing' or 'awareness': do the participants aware or know that they are consenting to respond to any or all questions during the interviews; and do the participants knowingly give the interviewer permission to use their responses, regardless of what they said (good or bad) (King et al. 2019:36).

For this study, this researcher directly asked the participants for their consent. The consent letter adhered to the prescriptions of UNISA (see Appendix V on page 198**)**. That is, prior to interviews, this researcher disclosed to participants who were TM librarians the aim and nature of this study, data collection procedures and the scope. Semi-structured interviews were used by this researcher to collect data from TM librarians, and she made sure that she followed all the ethical guidelines during interviews. The adherence to confidentiality safeguarded the information provided during interviews. In compliance with the UNISA ethical guidelines, this researcher obtained the participants' signed permission/consent in the format shown under appendices on page 198.

This researcher ensured that the research was ethical and free from plagiarism, as plagiarism violates ethics. Researchers should acknowledge the work of others and refrain from using other peoples' work as their own (Creswell 2018). In order to gain trust and support from the institution, as well as participants, Creswell (2018:89-90) suggests the following codes of ethics:

- Do not plagiarise;
- Apply to the institutional review board for ethical clearance;
- Provide a consent form which supports participants' rights and clearly introduces the intention of the study prior to interviews;
- Respect participants and give them a fair and equal treatment: informants are doing the researcher a favour; there is no need to impose;
- Obtain formal permission to access the research site;
- Submit a research proposal to the institution under investigation;
- Negotiate authorship for publication (for dissertation).

4.8.2 Privacy, anonymity and confidentiality

This researcher maintained privacy, anonymity and confidentiality of participants to make sure that participants' names or identities were not released or recorded anywhere on the data sheets so that no one would be able to link them to the responses they provided. As stipulated by UNISA master's and doctoral research policy (2016:17):

> Researchers should maintain privacy, anonymity, and confidentiality of information in collecting, creating, storing, accessing, transferring and disposing of personal records and data under their control, whether these are written, automated or recorded in any other medium, including computer equipment, graphs, drawings, photographs, films or other devices in which visual images are embodied.

The personal records and data were safely kept in a password-protected file on the researcher's personal laptop, while disposal of records was done by shredding.

4.8.3 Plagiarism

In addition to violating the copyright owner's economic rights, using someone else's work for research or study without acknowledging such work may also violate the writer's moral rights and be illegal (UNISA 2022:2). As such, the researcher cited and acknowledged all the sources used in this study, and a reference list was provided.

4.9 Quality of the study

Looking at the interpretive point of view, a case study could be considered to have integrity when the findings were true, consistent and repeatable. This case study provided a detailed and honest account of the experience of TM librarians with Sierra/FOLIO Platform at TM Library. This study started in 2018 and derailed by COVID-19, when the presumed population was 28 librarians. Between 2018 and 2023 TM transferred some of the librarians, and others were on study leave. Some of the librarians were not interviewed due to work commitments, while archivist were excluded due to the fact that they were not using Sierra/FOLIO. Hence the reason for this study to have interviewed 13 out of 24 participants. This number does not affect the quality of study as the use of these Web 4.0 technologies contributed to the reduction of TM staffing. Secondly, only cataloguing and circulation librarians interacted with Sierra/FOLIO. Thirdly, although there are no rigid specifications about the ideal number for qualitative interviews, certain academics believe that 10 to 50 individuals is enough (Creswell 2018). In order to ensure trustworthiness, validity and reliability, this case study made use of triangulation of data sources, which included document analysis and interviews.

In order for this researcher to not limit the ethics to the interview process, this study used UNISA policy for copyright and plagiarism, the UNISA research policies, as well as the master's and doctoral policy and procedures documents of UNISA (2019). That is, this study

complied with ethical procedures, such as academic integrity, copyright infringement and plagiarism, informed consent, privacy, confidentiality and anonymity. Prior to information being widely disseminated, this researcher verified that the participants' confidentiality and anonymity were protected by removing any revealing traits. That is, this researcher ensured that neither the names of participants nor any other information revealing their identities was released.

Reliability, on the other hand, describes the consistency of the engaged analytical procedures. Reliability has to do with how well the researcher has conducted his/her research project. When dealing with reliability, this researcher captured detailed field notes by using a good quality tape-recorder during interviews, and made sure that the instrument did not intimidate the interviewees, as suggested by Neuman (2003:179-181) and Creswell (2013:253).

Corbin and Strauss (2015:347) argue that qualitative research lacks quality, and suggest the following as factors that can enhance the quality of qualitative research:

- maintain consistency in methodologies;
- stipulate a clear purpose of the study;
- self-awareness (watch out for biases) – a journal of the researcher's feelings and reactions during data collection and analysis is required;
- acquire skills on how to conduct a qualitative research;
- empathy for participants, devotion in research project;
- portray creativity in qualitative research, anticipate methodological criticism, address methodological problems as they arise, and have a genuine need to do research and persevere. As clarified by Liamputtong (2020), other researchers can rely on rigorous qualitative research. 'Rigour' can be favoured over the terms 'validity' and 'reliability' used by qualitative researchers because rigour highlights the distinct technique involved in research that focuses on meanings and interpretations.

4.10 Summary

Drawing from the nature of this study, as a qualitative research, this chapter discussed the interpretive research paradigm underpinning this study. This chapter continued to elaborate on the qualitative research approach used for this study: its advantages and disadvantages, the case study research design and its pros and cons, the advantages and disadvantages of face-to-face

interviews and document analysis as data collection tools for this study, data collection and thematic analysis procedures, as well as ethical considerations and trustworthiness issues.

CHAPTER FIVE: PRESENTATION, ANALYSIS AND INTERPRETATION

5.1 Introduction

The previous chapter discussed the research methodology the study used, covering the research paradigm, research design, study population, data collection and analysis procedures, as well as ethical considerations observed by this study. This chapter thematically presents analyses and interprets the study findings as informed by the study objectives. In 2018, when this researcher commenced this study, she was seeking to understand the factors that contributed to the adoption and use of Sierra LSP at TM Library. However, in February 2023, the announcement came to LELICO members that TM Library migrated from Sierra to an open-source platform called FOLIO in January 2023. Consequently, this change forced this researcher to make the decision to investigate the level of adoption and use of both Sierra and FOLIO because the migration of records from Sierra to FOLIO had not yet been completed. That is, although TM had implemented FOLIO, the librarians were still using Sierra, as they were in the learning phase of the new FOLIO LSP.

The qualitative data for this study were extracted from documents and interview transcripts. Organising passages from the transcripts into categories is a more typical method of presenting and analysing interview material than creating profiles (Seidman 2019:133). Therefore, the data are presented in a narrative form because researchers conduct interviews to learn about the participants' experiences through their stories (Seidman 2019). The process of qualitative analysis is one that continues throughout the course of the research, and the researcher is continually revising and adding new concepts, recognising new dimensions and discovering new connections between concepts (Corbin & Strauss 2015:69). As a result, this chapter presents the analysis and findings of this study, and emphasises the phenomenon that was first introduced and explored in chapter one, theorised about in chapter two, and methodologically validated in chapter three.

As an overview of data collection instrument, section A of this study's interview guide sought to collect participants' demographic data and the length of time they worked at TM Library, while section B dealt with participants' awareness, determining whether participants were aware of the two implemented library systems at TM Library. Section C contained five divisions that were based on ITAUM to understand the amount of acceptance and use of TM

library systems. These divisions include IT skills and experience, institutional technology use policy and guidelines, perceived usefulness, perceived ease of use, and perceived ubiquity.

5.2 Presentation of data

In this section, study objectives, as stated, were used to thematically organise the findings. In other words, the information gathered from the content analysis and interviews is displayed together as whole. The interview results were augmented by data from document analysis. Furthermore, the results are presented in tables and written descriptions. As it has been proven to be effective in detecting, analysing, and presenting themes in qualitative data (Creswell 2018), thematic data analysis was selected to analyse data collected from interviews. Therefore, the presentation of this study's findings was driven by these objectives to:

- assess the extent to which TM librarians adopted the library services platforms since 2016 to January 2023 when they implemented FOLIO;
- discover the factors that influenced the adoption of Sierra LSP by TM librarians;
- propose a guideline for the successful adoption and continued use of the library services platforms and their successor systems at the TM.

5.3 Description of the participants

It is worth sharing that this researcher learnt about TM staff and their positions from the TM website, which might have not been updated by then. Table 4 below shows the TM sections and the number of librarians per section:

Table 4: Description of the participants

Section	Number of participants
Acquisitions	2
Cataloguing	5
Circulation	9
Documentation	1
Reference Services	1

Research Commons	1
Serials	1
Systems	1
Management	3
Total	**24**

For this study, the presumed informants included management and librarians of TM Library in the following sections: Acquisitions (2), Archives/IR (Institutional Repository) (4), cataloguing (5), Circulation (9), Documentation (1), Reference Services (1), Research Commons (1), Serials (1), and systems (1). The TM management (3) comprised the university librarian and two heads of the main sections, which are Information Resource Management (IRM) and Client Access, Training and User Support (CATUS), giving a total of 28.

The researcher also discovered the following changes: three (3) librarians were no longer in cataloguing section, as one had been moved to Archives/IR, one had replaced a retired librarian in one of the TM branches, and the third had been promoted to Scholarly Communications. The study population was further reduced by two (2) circulation librarians who were on study leave. Reference Services and Research Commons had been combined and managed by one (1) librarian, Acquisitions had one (1) librarian for the acquirement of print materials and the other librarian (1) for Serials. The university librarian and one head of section (2) were not accessible for comments due to work commitments, leaving one head of section to participate at management level. As a result, only 13 librarians signed the consent form.

However, the functions of three participants were not catered for by either Sierra or FOLIO: the documentation centre used CDSISIS for the management of grey literature, and this participant was due to attend a digitisation workshop so that the Documentation centre, combine with TM archives (IR), could also use FOLIO. Two participants used ITS for acquisitions because Sierra and was not fully implemented, as it did not implement the acquisition module which would then be integrated with the NUL financial system (ITS), making it impossible for TM librarians to use this system for other library processes like ERM. These acquisitions librarians used ITS because ITS was integrated with the financial system, making it convenient and timely for procurement of library materials. Going forward, the

decision was made to exclude these three participants from further probing, and this exclusion left the number of participants at nine.

This researcher interviewed librarians from all the eight sections of the TM Library, including: Acquisitions, Circulation, Documentation, Management, Reference and Research Commons, Serials, and Systems, as part of the data gathering process. The letter "P" for the participant's name and letters of the alphabet were used to code the interview participants. The codes, which represented the number of participants, ran from PA to PM. TM Library management and librarians using Sierra/FOLIO had more and in-depth knowledge of the implementation and performance of Sierra/FOLIO. Therefore, similar interview questions and follow-up questions were directed to individual sections.

5.3.1 Demographic data by years of experience

Years of experience in the designated library positions influenced this study because they determined the background and familiarity of TM staff with the library automation systems. Ajibade (2018) concurs that IT skills and experience influence the adoption and use of systems, as these constructs positively affect ease of use of the library systems. Table 5 presents the demographics of TM librarians by experience.

Table 5: Demographic data by experience

Experience in Years	Number of Participants
0-4	1
5-9	5
10-14	6
15 and Above	1
Total	**13**

Examining the experience of TM librarians presented in Table 5, out of 13 participants, one had more than 15 years' experience**.** Seven participants had more than 10 years' experience and above, while five participants' experience was between 5 and 9 years. One participant has the least years of experience – between 0 and 4 years. Further analysis of this table indicated that since TM Library implemented Sierra in 2016, 8 participants had a chance to also have

experience using ITS library module and Millennium ILS, which were the predecessors of Sierra. Still, the experience of TM librarians with automation systems was enough to help them adopt Sierra/FOLIO and continue to use it for their daily operations. Ajibade 2018:1) confirms that the employee's previous experience and expertise in IT support the ease of use of technology.

5.3.2 Demographic data by qualifications

In accordance with the conceptual framework of this study, the participants were asked to describe their particular areas of study. Based on this, the researcher could determine whether the participants had the necessary skills to enable them to adopt and maintain the use of Sierra/FOLIO. Ajibade (2018) indicated that IT skills promote ease of use of technology systems, which may lead to a successful adoption and continued use of such systems.

Table 6: Demographic data by qualifications

Main Qualification	Number of Participants
Postgraduate in LIS	5
Another postgraduate qualification	2
Bachelor of Information Science (BLIS)	2
Diploma in LIS (DLIS)	4
Total	**13**

The educational qualifications in this study were a factor. In this regard, some participants had a deep understanding of a topic, while others relied on background information, experience and IT skills. As a result, the given expertise level differed. According to Table 6, six participants had postgraduate qualifications in LIS. Two had other qualifications related to LIS, two were BLIS holders, followed by four DLIS participants.

Looking at Table 6, more than half of participants had a postgraduate degree, and the rest had undergraduate certificates in LIS, and were further empowered by in-house training and workshops related to the implemented systems. This shows that TM Library was investing in continuous education, as new technologies emerge continuously, and libraries should encourage professional development (Wärnich, Carrel, Elbert & Hatfield 2015; Ajibade 2018)). Based on Table 6, TM librarians had the potential to adopt and continue using FOLIO

with great success, as most LIS qualifications encompass IT/ICT courses. Taylor and Calitz (2020:2) also suggest that since students have to be able to succeed in an employment setting that continues to evolve with technology, academic departments in computer science, information systems, and IT should provide programmes and curricula that are appropriate for an ever-evolving environment.

5.4 Document analysis

Document analysis is the various techniques a researcher can use to make sense of the examined documents or visual resources related to this study, such as interview transcripts, newspapers, government reports, personal journals and diaries, institutional reports, videotapes, digital resources, and websites (Myers 2013:172; Schwandt 2015; Creswell 2018).

Having discussed the demographics of the study population, this section deals with document analysis. This researcher performed a thorough analysis of documents about NUL and TM library. This researcher accessed and analysed historical documents from the NUL and TM Library websites, and the results informed the introduction and background to the study, as well as the interview guide. Later on, this researcher analysed the documented field notes that informed the findings of this study. The Innovative Interface (vendor for Sierra) website, FOLIO website, and Open Library Foundation articles were based on the development of Sierra to get the roots of FOLIO LSP.

Sources from Library Technology Guide, Google Scholar, and journals on the library systems' trends, such as such as *Library Philosophy and Practice*, were also analysed on the basis of the study topic. Articles authored by Marshall Breeding, Kumar, Shaw and De Sarkar (2021), Wada, and Pradhan (2019) shed light on the importance of cloud computing technology in libraries, helped this study to conceptualise, and the analysis helped the researcher to relate cloud technology in the context of TM Library, as it appeared that the LSPs are cloud computing applications.

Given the analysis of the in-house documents of NUL, this researcher continued to analyse digital content accessed from the UNISA repository, and the analysis enabled this researcher to shape the topic for this study. The analysis of this digital content that related to this study helped the researcher to refine the study topic and learn the writing skills, flow and articulation of dissertations written by the Department of Information Science scholars.

Print and online resources on qualitative research and theoretical framework were also examined to equip the study with appropriate qualitative methods and framework for this study. As a novice researcher, this study was able to follow the qualitative research methods guided by Creswell (2013; 2014; 2018). The study's conceptual framework was informed by an article authored by Ocholla and Le Roux (2011). The examination of sources like Ngulube (2015) also contributed a great deal, as this researcher was able to differentiate between a conceptual and theoretical framework, and decided on the appropriated framework for this study. This was followed by the analysis of a paper written by Casanave and Li (2015).

The analysis of the theories of Davis (1989), Tripathi (2017) and Ajibade (2018) helped this researcher to come up with the appropriate technology acceptance model for the adoption and use of library services platforms, as cloud computing services, as she was able to develop a conceptual framework from the theories of the mentioned authors. The analysis of the three technology acceptances models continued to assist this researcher to mend and combine constructs, such as perceived usefulness and ease of use from Davis (1989), IT skills, supervisor's assistance, and IT use policy from Ajibade (2018), and ubiquity from Tripathi (2017).

Lastly, this researcher attended UNISA Teams workshops, webinars, and MOOC (massive open online courses) and visited the master's and doctorate Facebook page to further equip the study with case study methods. These YouTube presentations covered almost all of the research aspects, including different types of research (qualitative, quantitative, and mixed methods research), student and supervisor relationships, theoretical framework, dissertation/these writing formats, Turnitin submission, UNISA research policies and procedures, in-text citation, referencing, and how to avoid plagiarism.

5.5 Interview themes and sub-themes

As depicted in Table 7, this researcher generated six themes from ITAUM as the conceptual framework of this study. Furthermore, each of the pertinent primary themes that arose from the participants' responses had sub-themes that were discovered, and appropriately correlated to the main themes. The table presents the interview themes and sub-themes based on ITAUM. In Table 7, the first, second and third themes have a number of sub-themes. According to the table below, this study's seven primary themes included:

- Awareness of the implemented systems at TM;

- IT skills and experience;
- Institutional technology use policy and guidelines;
- Perceived usefulness;
- Perceived ease of use;
- Perceived ubiquity;
- Attitude.

Table 7: Themes and sub-themes

Themes	Sub-Themes
1. Awareness of the implemented systems at TM Library	1.1 The description of the TM library management system in use 1.2 The time when the TM system was implemented 1.3 The description of FOLIO 1.4 The reason why TM library migrated from Sierra LSP to FOLIO LSP
2. IT skills and experience	2.1 IT/ICT skills possessed by TM librarians
	2.2 Additional skills that can improve performance while using Sierra
	2.3 The level of implementation and adoption of Sierra at TM Library
	2.4 Challenges experienced by TM librarians while using Sierra
3. Institutional IT use policy, rules and guidelines	3.1 The Role of Institutional Technology Use Policy and Guidelines
	3.2 Supervisor's motivation for the adoption and continued use of Sierra
4. Perceived usefulness	Usefulness of the LSP
5. Perceived ease of use	Ease of use of the LSP
7. Perceived ubiquity	System's functions that TM librarians are using
	Additional functions that TM librarians use
8. Attitude	What influenced the attitudes of TM librarians to adopt and use Sierra/FOLIO?

5.5.1 Theme 1: Awareness of the implemented systems at TM

The first theme of this study's data presentation, analysis and interpretation is the awareness of the implemented TM systems. The study generated this theme from this study's conceptual framework, which was to determine how many people knew about the systems implemented at TM Library. In line with this theme, the outcome of the four questions determined the relevance of supervisors' support, as it is through the communication and knowledge they shared, training, guidance and close monitoring that their subordinates can adopt and continue using Sierra/FOLIO LSP.

5.5.2 Sub-theme 1.1: The current TM system(s) in use

Therefore, this section aimed to understand the level of cognisance and knowledge of the implemented systems at TM Library, focusing on TM librarians who were using Sierra/FOLIO for their daily operations. Of the 13 respondents interviewed, five did not use Sierra or FOLIO, and from the eight, who utilised the LSPs, the majority used both Sierra and FOLIO, two used only FOLIO, while one reported using Sierra only.

Question: For your line of work, what is the name of the library management system you are using? The eight participants who used the system(s) used it for the following:

PB - "*I am using Sierra"*

PC - "*I am still using Sierra and FOLIO for both purposes of issuing and returning library items".*

PD - "*I am using Sierra and FOLIO".*

PE - "*I am using both Sierra and FOLIO".*

PF - *"I am using both Sierra and FOLIO because Sierra is being phased out, and the migration of records from Sierra to FOLIO is not completed yet".*

PG - "*I am using Sierra and FOLIO".*

PH - *"I am using FOLIO".*

PI - *"I have stopped using Sierra, and familiarising myself with FOLIO".*

Based on the responses presented above, all the eight participants were aware of the implemented Sierra and FOLIO platforms. According to the above findings, out of eight participants, five (PC, PD, PE, PF and PF) used both Sierra and FOLIO, PB (1) used Sierra

only, while PH and PI (2) have started using FOLIO. The findings further showed that TM Library used Sierra, FOLIO, CDSISI and ITS, and at the time, these four systems were working in isolation. This is a challenge because TM Library has been shifting from one system to another seeking the automation system that would help them manage all the library collections and integrate with the university system (ITS) at the most affordable price possible. It was hoped that FOLIO would integrate all the library sections, as well as NUL ITS. The reviewed literature confirms that in this era of cloud computing, physical library visits have deteriorated, owing to limited and invisible library resources, outdated library holdings, and a lack of professional services, while library users need instant access to the library resources (Abidin, Zulaikha, Wicaksono, Umam & Aulia 2020). Although they were invited for the webinar training, most of the librarians, especially at the lower level, did not fully understand the background of FOLIO, and its purpose to their library. Therefore, the name of the TM system influenced the participation in that. This study assumed that some participants, as well as this researcher, might not have been aware of the existing TM systems in use, as this researcher found FOLIO during data collection processes.

This study also discovered that TM Library was in the process of digitising grey literature with the aim of making such documents accessible on the FOLIO platform, as it would integrate with all library systems. Having learnt that the migrations of the TM collection from Millennium to Sierra, and from Sierra to FOLIO had some issues, this grey literature should be handled with care during digitisation and migration. Pasqui (2024) states that digital libraries are part of historical heritage, and every relocation must take precautions to make sure that no data are lost or distorted.

Table 8: The **systems in use at TM Library**

System/Software	Functions
CDSISIS	Fully used for the upkeep of grey literature (to be phased out).
DSpace	Open source software fully used for digitisation of archival records/institutional repository at TM.

FOLIO LSP	Newly implemented open source SaaS that TM intends to integrate with ITS and all its sections in order to acquire and manage print, digital and e-resources. Documentation and archives will be combined to make one unit.
ITS	Proprietary SaaS that integrates NUL departments, including finance and registry units.
RDA (Resource Description and Access)	TM implemented RDA, together with FOLIO for cataloguing and making the accessibility of all the multi-format collection easy to library communities. RDA is a resource description and access standard developed for online/virtual environment. RDA surpasses the previous cataloguing standards by providing suggestions for indexing e-resources, and emphasising more strongly on assisting library clients in finding, identifying, choosing, and obtaining the content that they need (Spry et al. 2023:6).
Sierra LSP	Proprietary SaaS that TM Library paid for circulation, cataloguing, and OPAC modules (to be phased out).

5.5.3 Sub-theme 1.4: The description of FOLIO

This researcher further tested the level of knowledge TM librarians obtained from FOLIO training and in-house workshops by requesting the participants to describe FOLIO. That is, to ascertain the TM librarians' understanding of FOLIO because the acceptance of new technology is determined with the knowledge of its background, its performance and understanding of how such technology works.

Question: What do you understand by FOLIO? Out of 13 participants, the nine who responded to this question described FOLIO this way:

PB - "*FOLIO stands for the future of library is open, and it comes from EBSCO".*

PC - "*FOLIO means the future of libraries is open. It is the product of UKS".*

PD - "*FOLIO is a product of EBSCO and UKS, and it means the future of libraries is open".*

PE - "*FOLIO stands for the future of libraries is open. It is open source software meant for the integration of systems and resource sharing".*

PF - *"I only know that FOLIO stands for 'Future of Libraries is Open".*

PG - "*FOLIO is an open source solution funded by EBSCO to help libraries access and manage resources in an affordable manner".*

PH - "*FOLIO is an open source system that is tailored to meet the needs of libraries as the librarians, systems developers and vendors contributed to the design of FOLIO".*

PI - "*FOLIO is an open source system that will enable our library to integrate with the institution's ITS to allow for the acquisition of both print and e-resources, support the EBSCO discovery, and facilitate collaboration among TM libraries. EBSCO funded UKS for the implementation and training FOLIO".*

PL - "*FOLIO stands for 'Future of Libraries is Open'. It is an open source platform that is community-driven and funded by EBSCO. In the case of our library, EBSCO engaged UKS (Universal Knowledge Software) from South Africa to deal with the technical implementation and training, while EBSCO provides funding for UKS. For now, our library uses FOLIO for circulation and cataloguing functions only. With Sierra, our collection and library systems were working in silo, as there was no integration, while FOLIO is promising to integrate all the systems, and use its discovery service to search all the library collection and systems on single search box (universal interface)".*

Based on the scenario at TM Library, where data collection took place in the middle of librarians' training sessions, while they were still learning and familiarising themselves with FOLIO, it would not be fair to expect clear and consistent description of FOLIO, as it was a newly implemented platform. However, contrary to responses from PB, PC and PF (3), FOLIO stands for "The Future of Libraries is Open" and originated from the Open Library

Environment (OLE), which was launched in 2008 (Chauhan, Kandhasamy & Sakthivel 2023:153). In order to help libraries remain viable, the Open Library Foundation (OLF) was founded in 2016, and this foundation collaborated with OLE, Index Data, and EBSCO to develop an open source project called FOLIO (Chauhan et al. 2023:153; Zhou, Zhang, Ji, Zhou & Zhang 2023:4). OLF is an independent non-profit entity that guarantees the availability, accessibility and sustainability of open source and open access initiatives for and by libraries (FOLIO 2023). Consistent with PH, FOLIO, on the other hand, is an open source library services platform designed jointly by librarians, developers and suppliers (Liu 2021; Zhou et al. 2023). The endeavour to open FOLIO was one of the many open source library projects that were housed under OLF with a goal to design a new library service method using open source software (FOLIO 2023; Chauhan et al. 2023).

This OLF is a corporation with legal standing to hold FOLIO-related intellectual rights, while EBSCO remains a hosting service provider for FOLIO (Breeding 2017:28), proving that the actual vendor for FOLIO is OLF (Wong 2020:6). OLF works to foster and encourage librarians, technologists, developers, vendors, telecommunications companies and vendors in order to share knowledge and resources, and develop a ground-breaking novel library-supporting software and services. This FOLIO LSP made major improvements since its foundation, and went online in 2019 (Breeding 2023).

EBSCO Information Services played a significant role in the FOLIO project, as it started this project, and supplied financial means, strategic management, and promotions (Breeding 2017:27). A similar case occurred at TM Library, where EBSCO funded a South African-based company called Universal Knowledge Software (UKS) to implement FOLIO LSP at TM Library as confirmed by PG, PI and PL (3).

While EBSCO does not have an integrated library system or library services platform of its own, EBSCO demonstrated a significant financial contribution to the development of the FOLIO project (Breeding 2017:27). With the open architecture of EBSCO FOLIO ERM, authorisation, discovery, statistics, and more can be managed throughout every phase of their life through application programming interfaces (API) and tools (Breeding 2023). In terms of discovery, FOLIO used EBSCO as their web-scale discovery service. The meaning of FOLIO influenced the study in that the study was able to project the level of adoption because a clear understanding of a new system prevents resistance to change, and pave the way for successful adoption and use of the system (Kavanagh, Thite & Johnson 2015).

5.5.4 Sub-theme 1.2: The time when the TM system was implemented

Participants were asked to state the time Sierra/FOLIO was implemented in order to analyse the gap between the implemented systems and the duration for which such systems had been in use.

Question: When was Sierra/FOLIO implemented? A total of eight participants responded in the following manner:

PB - "*I can't remember when Sierra was implemented, but FOLIO was implemented some few weeks ago: end of January 2023 or early February 2023".*

PC - *"I don't know when Sierra was implemented because I started working here three years ago. However, we started using FOLIO in January 2023".*

PD - "*I am not sure when Sierra was implemented, but FOLIO was implemented in January 2023".*

PE - "*I don't know when Sierra was implemented, but we started using FOLIO towards the end of January".*

PF - "*The Innovative Sierra was implemented in 2016, and FOLIO in January 2023".*

PG - "*Sierra was purchased in April 2016, and FOLIO was acquired in January 2023".*

PH - "*Sierra was implemented after Millennium in April 2016, while we started using FOLIO in January 2023".*

PI - "*Sierra was implemented in April 2016, while FOLIO was deployed on 31 January 2023".*

The above findings indicated that Sierra was acquired in April 2016, implying that TM Library used Sierra platform for seven years without being able to integrate it with TM sectional systems and NUL ITS, and just started using FOLIO in February 2023.

5.5.5 Sub-theme 1.4: Why TM migrated from Sierra LSP to FOLIO LSP

This researcher enquired from TM librarians who were using Sierra why TM library was replacing Sierra with FOLIO. The purpose was to gather the reasons why the TM LSP was replaced with another LSP, and to discover whether all stakeholders were on board because employees will not readily adopt a new initiative if they do not understand its importance (Kavanagh et al. 2015:259).

Question: Why is your library changing from Sierra LSP to FOLIO LSP? Out of 13 participants, nine stated that TM Library was encountering the following problems:

PB - "*I only heard from my colleague that our library system is going to be replaced with FOLIO".*

PC - "*I just heard from rumours that our library is looking for a cheaper system as Sierra is expensive".*

PD – "It was not clearly communicated, but I understand that the university can longer afford to pay for Sierra. That is why our library is implementing FOLIO".

PE - "*I don't know. I just heard from the rumours that we are shifting from Sierra to FOLIO because Sierra is expensive".*

PF - "*We did not receive a formal communication about the replacement of Sierra, but I heard that our library is now changing to FOLIO because Sierra is expensive, and other universities are also phasing it out".*

PG - "*Financially, NUL is struggling, pushing TM to select cheaper automation systems, and most academic libraries are shifting from Sierra to more innovative systems as the vendor is no longer offering support for Sierra."*

PH - "*TM is looking for an affordable system that will integrate with NUL ITS. That is, the FOLIO system with a discovery tool that searches TM databases all at once, including IR".*

PI - "*The maintenance and annual subscription of Sierra is expensive*; *most of the universities in Southern Region are facing out Sierra; and Innovative Interfaces Inc. is no longer giving support to Sierra".*

PL - "*Though Sierra is a cloud-based system just like FOLIO, our library was only using it to manage print collection, as it was not possible for NUL to pay for expensive CONTENTdm, which is an a application that enables Sierra to manage all the multi-collection of TM. Secondly, Innovative interfaces Inc. has stopped the development or upgrading of Sierra, and has even sold Sierra to another company called Ex Libris. Thirdly, the annual subscription and maintenance of Sierra was costly for NUL, as its financial status are not good. Sierra was also not integrated with ITS which was linked to NUL systems, including finance department for acquisitions of library materials, and Adapt IT as the vendor of ITS (from South Africa) would charge extra costs for NUL to link Sierra to ITS".*

PM - "*Given the size of our university, there is a need for an integrated library platform. As compared to open source FOLIO, Sierra is an expensive proprietary platform though its functionalities are more or less the same as FOLIO. However, I am not able to elaborate more on the functionalities of open source FOLIO. See our systems librarian for a detailed report".*

After these findings, this study made a follow-up question to some of the TM supervisors on how they shared the news of Sierra replacement. These supervisors admitted communicating the news through the emails, although they might have shared the news at the advance stage, where some of their subordinate could not comprehend the reasons for replacing Sierra with FOLIO.

According to the information contained in chapter one, TM Library left ITS for Millennium, then shifted from Millennium to Sierra. However, the findings from further probing that was made through the telephone interviews, PL indicated that unlike Millennium, ITS was not a stand-alone library system, but a library module within the university ITS. TM Library stopped using this module because it was not complaint with the TM library requirements, as it had lengthy operational steps, and the vendor was no longer upgrading this feature to meet the needs of TM as an academic library. Furthermore, regardless of how they knew about the changes, the majority of the participants were aware that TM migrated to FOLIO for the following reasons:

- most universities were increasingly shifting from Sierra to innovative systems;
- NUL could not afford to pay for the integration of Sierra;
- TM Library was no longer receiving support from its vendor.

ExLibris purchased Innovative Interfaces Inc. in 2020 and subsequently operated as a separate commercial company in collaboration with ExLibris (Bai 2022:3). Based on this revelation, TM compromised proper communication, as five of the participants (PB, PC, PD, PE and PF) were uncertain about the reasons why TM was replacing Sierra. Citing the comments of these five participants, when TM supervisors were planning for the acquisition of FOLIO, they should at least have shared a clear communication about the decision to change Sierra, narrating the background and performance of Sierra, as well as the reasons why TM Library was moving to FOLIO. For instance, informing their subordinates that they had been using Sierra since 2016, but due to financial problems, and other issues, TM had decided to replace Sierra with open source FOLIO, and communicated the opportunities that FOLIO was bringing to their library.

As the analysis continues, this study detected communication problems, as supervisors seem to have not properly communicated to their subordinates why TM was replacing the current Sierra LSP with FOLIO, impeding knowledge retention and involvement that, in turn, may result in resistance to or reluctant adoption of FOLIO. Furthermore, while implementing new technology systems, work design decisions need to be taken thoughtfully. Moreover, the involvement of all stakeholders (e.g. NUL management, TM library staff, students' representation, faculties, and researchers/drop-in users) should also have been taken into consideration (Parker & Grote 2022:1).

5.5.6 Overview of previous and current systems in use at TM library

As confirmed by PA, PL and PM, the following is the overview of the systems that TM library was still using by the time of data collection, except for Millennium ILS, which is the predecessor of Sierra LSP.

Table 9: TM library systems

System	Description
CDSISIS	TM Library system that was still being used to manage grey literature.
DSpace	Open software that TM Library was using to digitise its archival records.
FOLIO LSP	Open source LSP that TM Library implemented in January 2023 through the initiative of EBSCO.
ITS	NUL library services platform that integrates all the university systems provided by IT Africa (a South African-based company/vendor). This ITS also had the library functionality that could not meet the needs of TM, compelling TM to install Millennium.
Millennium ILS	A locally installed integrated library system that was meant for print collection. This software was the product of Innovative Interfaces Inc.
RDA	Newly implemented cataloguing system that TM is using.

System	Description
	By means of the creation of relationships between publications and their authors, RDA aims to assist catalogue users to locating, identifying, selecting, and obtaining the resources they need (Spry et al 2023:5).
Sierra LSP	A proprietary LSP that was developed from Millennium and TM Library found it inefficient due to a lack of funding to pay for all Sierra functions and maintenance, a lack of support from the vendor (Innovative Interfaces Inc.), which was also acquired by ExLibris; and the majority of libraries that have stopped using Sierra.

5.6 Factors that influence the adoption and use of the tm library system

It was important to review the success factors for the implemented TM platforms. This study, therefore, used ITAUM. This conceptual model used the ITAUM constructs to understand the factors that influenced the adoption and continued use of TM library systems. These constructs included IT skills, institutional technology use policy and guidelines, supervisors' support perceived usefulness, perceived ease of use, perceived ubiquity, and attitudes of TM librarians.

5.6.1 Theme 2: IT skills possessed by TM librarians

Based on the framework of this study, IT skills were one of the factors that influence successful adoption of technology systems, hence a need to examine the participants' level regarding IT knowledge. For this section, the systems section was included, raising the number of participants to nine.

Question: May you please share the IT/ICT skills that you have?

The following are the IT skills possessed by the remaining participants:

PB – "*I have IT tools, digital libraries, database management, web design and knowledge management."*

PC – "*I have computer awareness incorporated in my qualification."*

PD – *"My studies included computer awareness."*

PE – *Computer awareness was included in my undergraduate courses."*

PF - "*I studied computer awareness and have an extra certificate in IT."*

PG - *"My IT skills are interwoven in my qualifications, which include database management."*
PH - "*I did database management, IT tools, digital libraries, project management, and web design".*

PI - *"I have IT tools, and web design, digital libraries, project management, and database Management."*

PL - "*Among others, I have information systems, digitization, database management, project management, and web design."*

Of the nine participants, PC, PD, and PE (3) had computer awareness (word processing, PowerPoint, Excel, and Access*)* and information retrieval systems skills incorporated into their qualifications. PB (1) has IT tools, digital libraries, database management, web design, and KM skills infused in the educational qualification, while PF (1) had computer awareness and an extra certificate in IT. PH and PI (2) had the following skills incorporated into their formal qualifications: database management, digital libraries, IT tools, project management, and web design, while PL (1) had information systems, digitisation, database management, project management, and web design. Since TM librarians had adopted Sierra, it was evident that with their experience of using Millennium ILS and Sierra LSP, their qualifications, and their IT/ICT skills, they could successfully adopt and continue using the newly implemented FOLIO. Tripathi (2017) confirms that the majority of large institutions have invested in IT infrastructure, including skilled IT personnel to support automation platforms. Akintonde and Awujoola (2022:1) and Jayakumara (2022:3) emphasise that these days, ICT has significantly modernised several library processes, and for librarians to cope with new library technologies, they must have ICT skills. Similarly, it is the responsibility of librarians to acquire new library technology skills to enhance library services, and to ensure that both the library staff and users are taught to use a variety of cloud applications (Jayakumara 2022:113). To maintain their relevance in this digital era, librarians can also employ technologies, such as Facebook, Twitter and WhatsApp, to promote advertising of library resources, knowledge production and resource sharing among libraries/librarians, to assist the library's special events and programmes and to increase research and academic publications (Odocha, Udo-Anyanwu, Opara & Okereke 2023:1).

5.6.2 Theme 2.1: Additional skills that can improve performance at TM

To further understand the factors that can positively influence the adoption and continued use of Sierra/FOLIO, the participants were asked to suggest supplementary skills they would like to have to improve their performance while using sierra/FOLIO. The question was directed to all sections of TM Library. From the 13 participants, PL and PM (2) were comfortable with the skills they had, as they did not propose any others.

Question: Please suggest additional skills that can improve your performance while you are using Sierra/FOLIO? The following were the responses from 10 participants:

PA – *"I would like to have a continuous education on the digitization of the library records."*

PB – "*I need to be conversant with all types of research so that I can confidently handle research queries from students and researchers."*

PC - "*I need to be allowed to further my studies up to at least master's level."*

PD - "*I propose training on public relations and cataloguing skills so that I can carry out mini catalogue processes on Sierra. This is a requirement because in order for items to be discharged, we do mini catalogue for such items that are not fully catalogued or not catalogued at all."*

PE - *"I need to be allowed to further my studies to bachelor's degree and master's."*

PF - *"I need to be granted a study leave and proceed to bachelor's degree up to PhD."*

PG - *"I need to enhance my search skills, social media skills, as well as my presentation skills for conducting Information Literacy and students' orientations."*

PH – *"I wish to be conversant with the Resource Description and Access (RDA) cataloguing."*

PI – *"Though UKS is conducting training sessions on how to carry out cataloguing processes using FOLIO, the continuous RDA training is required."*

PJ – "*I would like to have e-resource management skills.*"

PK – "*I need to know how to acquire and manage e-resources.*"

According to the above statements, PA (1) wanted to acquire digital skills; PB wanted research skills; PC, PE and PF (3) wanted the library management to allow them to pursue LIS up to at

least master's and doctorate level; while PD (1) wanted to study public relations and have cataloguing skills. Based on the responses of three participants, higher degrees did not conform to ITAUM, as they may not necessarily equip TM librarians with specific IT skills on how to operate Sierra/FOLIO (not implying that professional development is irrelevant in the context of libraries). On the other hand, the findings proved that continuous in-house training and supervisors' support, among others, influenced the adoption and use of technological systems at TM Library. PG (1) needed to improve searching skills, social media skills, and presentation skills, while PH and PI (2) suggested continuous RDA training and workshops. PJ and PK (2) wanted to have ERM skills.

Monyela (2020:1) state that African libraries are steadily implementing RDA. For the sake of the readers' understanding, Spry et al. (2023:5) opine that in order to produce the description, name, and access points that reflect resources, RDA is an information standard for descriptive cataloguing that offers guidance and directions for bibliographic data on the virtual environment. AACR2, on the other hand, is the foundation of RDA, was created before the internet, during the era of card cataloguing (Monyela 2020). That is, the ability of RDA to cluster related entries to display several forms of the same work makes bibliographic records more pertinent in online settings.

5.6.3 Theme 3: The role of institutional IT use policy and guidelines

For this theme, an enquiry was made into how institutional technology use policy and guidelines enhanced the adoption and use of Sierra at TM Library.

Question: How does NUL IT use policy and guidelines help you to adopt and continue using Sierra/FOLIO? Out of 13 participants, the comments were received from 10 participants in response to this question:

PB - *"The library sectional manual and guidelines have been supportive as they stipulated how many books I should issue out for undergraduate and postgraduate students using Sierra."*

PC – "*IT use policy and guidelines are non-existent at the moment."*

PD – "*My library has an IT use policy and guidelines on a pamphlet that guides us on our daily operations: circulation of library materials, bookings, reserves, blockings, retrieval of statistical records, etc."*

PE – "*Our library has a very resourceful IT use policy and guidelines that guide me on how to capture items and check them in and out of the system."*

PF – *"The library has not been provided with the university IT policy, but has sectional manuals to guide the day to day operations of the library."*

PG – "*I have not seen NUL/TM policy, but I have seen TM library manuals, shared minutes, and guidelines, as TM is due to formulate additional policies, including digitisation policy."*

PH – *"We have sectional manuals in a pamphlet form that guides us on sectional operations."*

PI – *"I am not sure about the university IT policy, but I rely mostly on my sectional manuals."*

PL – *"The institutionalised IT use policy has not been shared for departmental consumption, as IT team had been tasked with formulating such policy, but I have not seen it yet, and I do not even know how far they are. Meantime, sectional librarians have distributed rules and guidelines that inform the IT use that include IT training, as manuals, pamphlets, minutes and emails."*

PM – *I understand it had been arranged with IT office to work on the NUL IT policies, but for now the library uses sectional manuals, meeting minutes and guidelines that inform how to carry out library operations."*

According to the findings, PB, PC, PF, PG, PH, PI (6), and PM indicated that TM Library relied on sectional manuals and guidelines other than the institutional IT use policy, as, according to PL and PM (2), it was the responsibility of IT team/office to develop IT policy. Contrary to what the majority of participants said, PD and PE (2) seemed to confuse the sectional manuals with the IT use policy, as they claimed that their sectional operations were informed by the NUL IT use policy. For better understanding, a policy is a principle that serves as a direction-setter for an institution, and a manual is a set of procedures that must executed continuously and consistently in order to achieve a particular objective (Brevis & Vrba 2014). Collectively, they are used to provide the guidance and uniformity required for optimal process enhancement while also empowering individuals in charge of the given tasks (Brevis & Vrba 2014:223). In a competitive climate, institutions require both policies and procedures to succeed, because IT rules and procedures provide guidelines on different elements of adopting IT correctly, and making the institutional policy more consistent (Chidiadi 2022). Sadaf and Durai (2020:201) confirm that the awareness of security issues and the transmission of information security rules to employees or end users are still insufficient in higher educational

institutions. The obstacles to making the best possible use of ICT resources for managing the libraries entail non-existence of ICT policies, limited budget, insufficient infrastructure, unpredictable power supply, limited bandwidth, and continuous technological changes (Chidiadi 2022:34). NUL/TM Library policies and guidelines must be engaged to promote institution-driven intervention strategies; and training of library staff and other stakeholders is necessary in addition to focusing on continuous skills development of library staff to assist them in adjusting to new technology systems (Ajibade 2018:8).

5.6.4 Sub-theme 3.1: Supervisor's motivation

Upon testing compliance with the ITAUM, this researcher prompted participants to indicate how their supervisors' motivation influenced their adoption and use Sierra/FOLIO. Supervisor support is one of the determinants of successful adoption and use of technology, and this prompted the researcher to establish the level of assistance TM librarians received from their supervisors in order for them to adopt and continue using Sierra/FOLIO.

Question: How do your supervisors motivate you to adopt and continue using the newly implemented library systems? The eight comments for this question included:

PB – *"Since the vendor of Sierra did not provide training, senior librarians, guided by library manuals and guidelines, offered training to make us understand how Sierra worked."*

PC – *"I am getting no motivation from my boss."*

PD – *"Senior librarians held two to three days' workshop/training for us on how to use Sierra."*

PE – *"No motivation, but the supervisor facilitated training. Thereafter I was on my own."*

PF – *"Innovative Interfaces did not provide training for Sierra, but my supervisor, IT knowledge, in-house training, system manual packaged with the Sierra software, and the experience I got from using Millennium helped me to understand and adopt the system much faster."*

PG – *"My supervisor is always on call to help me on how to use Sierra if I call any of them from my designated workstation."*

PH – *"Senior librarians organised training for us, and my immediate supervisor is always available for assistance in case I forgot what was said in training sessions."*

PI – "*With the help of systems librarian, my supervisor, and the training that we got, I am gradually getting acquainted with FOLIO."*

Noting the above findings, PB, PD, PF, PG, PH, and PI (6), which was more than half of the participants, showed that their supervisors had been supportive. PC and PE (2) provided contradictory statements, as earlier, they admitted to attending a FOLIO training organised by their supervisors, but now they claimed to not having received any support from their supervisors. One librarian stated IT knowledge, in-house training, system manuals, and experience in the use of Millennium as the determinants of easy and faster adoption of Sierra. The analysis for these findings was that senior TM librarians were supportive of their subordinates, as most of the participants admitted to receiving assistance that helped them to understand and continue to use the library systems. Therefore, the adoption and use of library systems are not only dependent on ease of use, but also on the institutional culture, which involves training of the workforce to become more adept at using the systems (e.g. if the library is migrating from one system to another, the head of Circulation should ensure that Circulation staff are trained) (Ajibade 2018).

5.6.5 Theme 4: Perceived usefulness of Sierra/FOLIO

The participants were requested to outline the benefits of Sierra/FOLIO in their line of work. Aligned with ITAUM, this study sought to find the benefits of Sierra in individual's line of work at TM Library, followed by the benefits of FOLIO. Perceived usefulness is the extent to which Sierra users trust that the performance of Sierra LSP will promote efficiency and productivity at TM Library (Tripathi 2017).

Question: What do you perceive as the benefits of Sierra/FOLIO in your line of work? The following were the comments from nine participants:

PB - *"Sierra is making my work easy and enhance productivity in my line of work; it reduces human errors, and detects registered students."*

PC - *"With Sierra, we are able to retrieve frequently borrowed items for acquisition purposes."*

PD – *"Sierra enhance my skills, as I am now able to use the mini catalogue function of Sierra to process books that are not catalogued."*

PE – *"Sierra does not loose records, enhance my performance and saves time for users."*

PF – *"Students can independently use the OPAC to locate the library items, instead of being directed by circulation librarians."*

PG – *Sierra shows those students who have been blocked and such students will be prohibited from getting their results before settling their library fines/loans."*

PH – *"With Sierra, cataloguing was made simple and faster by selecting related items by just typing the first letter(s) of an item and the list popped up, while we browse through a lengthy list of items in FOLIO. Hopefully, this issue will be resolved as we have reported it to the systems librarian, who report FOLIO issues to UKS as a supplier."*

PI – *"Sierra saves time and promotes productivity as it has only 4 easy steps for record creation during cataloguing."*

PL – *"Though it is not the case with our system at the moment, as we are using Sierra to only manage print collection due to lack of technical and financial, Sierra is a cloud-based and powerful platform that was intended to integrate with other systems and be accessed by TM communities wherever they are."*

According to the above statements, PC (1) stated that Sierra showed the statistics of borrowed items, which TM was using for acquisition purposes. PE (1) reported Sierra did not lose records; PB (1) indicated that Sierra minimised human errors, and promoted productivity; PD (1) showed that Sierra improved skills, such as cataloguing. PG (1) said that Sierra detected registered students who had been manually populated in order for librarians to send reminders through emails, and block those who did not comply with the demands of the library, as Sierra was not linked with ITS. PF (1) agreed that OPAC saved time for librarians, as users could independently use it to locate items; and PE (1) revealed that Sierra did not lose records, enhanced performance, and saved time. Based on what PL (1) said, it was clear that it was impossible for TM librarians to fully leverage the functions and opportunities brought by their Sierra LSP, as they were not able to pay for additional functions and annual subscriptions.

This challenge overwhelmed some of the TM librarians, as they were not even convinced why TM was replacing Sierra with an open source FOLIO LSP. Nevertheless, Sierra proved to be a stagnant system, as Innovative Interfaces Inc. was no longer upgrading it, and did not meet the needs of TM Library as a university library. Wada (2018:25) urges that academic libraries must implement cutting-edge systems for the effective delivery of information resources, and create a stable climate that can promote teaching, learning, and research. In this era of virtual

platforms, Kwanya and Stilwell (2010:9-10) share the four Ranganathan's principles that librarians should follow: the library is everywhere, the library uses adaptive up-to-the-minute systems, the library promotes participation; and no obstacles exist in the library.

5.6.7 Perceived usefulness of FOLIO

In the above section, the participants commented about the benefits of Sierra, and once again, this researcher, based on ITAUM, asked the participants to outline the usefulness of FOLIO.

Question: What do you perceive as the benefits of FOLIO in your line of work?

PB – *"We are not yet conversant with FOLIO: We are on the learning stage, and can't tell if FOLIO is beneficial or not."*

PC – *"I only understand that it will save the library budget because it is cheap."*

PD – "*There is a hope that FOLIO will integrate NUL ITS and all TM branch libraries, making it easy to manage collections and workflow."*

PE – "*I am not sure yet, as I have just started using it."*

PF – "*For now, I only heard from the training that with FOLIO discovery services, we will no longer have students queuing for the library services as they will access the full text content from any location."*

PG – *"FOLIO will be beneficial to our library, as it is packaged with all the library micro-services, and its construction is dominantly based on the ideas of librarians, developers, and vendors who strive to customise it to meet the needs of libraries."*

PH – *"With FOLIO, I will no longer use the AACR2 (Anglo American Cataloguing Rules, 2nd edition), but RDA (Resource Description and Access) to facilitate retrieval of the items in all formats."*

PI – *"I understand (from FOLIO training) that FOLIO will be integrated with ITS, and it will be easy for our library to acquire and manage library resources in all formats."*

PL – *"FOLIO is one of the open source software that uses multiple software or apps to deliver services, it reduces the costs of installation and maintenance of the automation software, and has a potential of helping all the TM library sections to integrate, manage their collection, and offer elastic storage for all the resources."*

According to the above statements, TM Library has not adopted and fully utilised FOLIO, as they were still learning how FOLIO worked. This was confirmed by PB and PE (1). PC (1) indicated that FOLIO was cheap. PD (1) was assured that FOLIO would integrate with NUL ITS and all TM branches, making it easy to manage the collections and workflow. PF (1) perceived that the FOLIO discovery services would help users to access the library content from any location. According to PG (1), FOLIO was loaded with micro-services, and its architecture was based on the suggestions from librarians, developers, and vendors to meet the needs of libraries. As revealed by PH (1), upon the arrival of FOLIO, TM Library replaced AARC2 with RDA for the accessibility of the library content in all formats.

TM Library was starting to use the RDA, which is also interoperable with current entries in other online library catalogues, both locally and globally, because RDA's organisational design is centred on assisting catalogue users in locating, identifying, choosing, and accessing the resources they need by bringing bibliographic entries together via relationships between resources and their authors (Spry et al. 2023:5). That is, TM Library was replacing Anglo American Cataloguing Rules (2nd edition) (AAR2) with RDA cataloguing standard, which was developed from AARC2 for this electronic era to describe all types and formats of the collections in libraries. As revealed by Monyela (2020:1), RDA is being adopted progressively by sub-Saharan Africa although there are problems with electricity supply, network, IT skills and training, funding and library systems. This author further suggests that the holistic engagement of stakeholders, creation of consortia, various forms of power supply or back-up, intensive IT training opportunities, and funding could result in the successful implementation of RDA in libraries (Monyela 2020; Parker & Grote 2022).

5.6.8 Theme 5: Perceived ease of use

The question requested the participants to indicate whether Sierra/FOLIO was easier to use because in most cases, people adopt and continue to use systems that are easy to use and are more beneficial (Davis 1989).

Question: In your line of work, do you consider Sierra/FOLIO easy to use? The following are the comments from eight out of 13 participants:

PB – *"Sierra is very easy to use and improves my performance. I am not sure if FOLIO will be easy to use, but I trust with computer literacy and experience I got from using Millennium and Sierra, I will cope with FOLIO".*

PC – *"I find Sierra very easy to use."*

PD – *"Sierra is a very easy to use platform, and I think with the support from my supervisors, my qualifications, the experience I got from using the previous TM systems, and devotion to practice, it will be easy for me to operate FOLIO."*

PE – *"I find it easy for me to use Sierra. I hope with my computer literacy and support from my supervisor, I will enjoy using FOLIO."*

PF – *"Sierra is a very simple system, but with my IT skills, qualifications, determination, and experience, FOLIO will be easy to use."*

PG – *"Despite the limited functionality, Sierra is easy to use and straight forward."*

PH – *"FOLIO will be as easy as Sierra because they are both library services platforms, and their functions do not differ much. It's just a matter of time, then we will enjoy using it."*

PI – *"Sierra is user-friendly, and I hope FOLIO will also be easy, as these platforms do not differ much."*

As indicated by the above statements, the majority of TM librarians perceived that with the experience they acquired while using Millennium and Sierra, and training, FOLIO would be easy to use. Ajibade (2018) confirms that staff IT knowledge and experience promote ease of use of technology systems. To add to that, Tripathi (2017) declares that most large organisations have invested in IT infrastructure and IT trained personnel, which determines the uptake of cloud computing services. Similarly, the findings indicated that the educational qualifications and experience of TM librarians might help them to cope with FOLIO LSP.

The findings showed that all eight the participants admitted that Sierra was easy to use and straight forward. Although Ajibade (2018) argues that institutional IT use policy encourages ease of use of technology systems, it appears that in the absence of institutional policy and guidelines, TM librarians adopted and continued to use Sierra relying on their educational qualifications, experience, IT skills, sectional manuals and supervisor support. However, Mangundu (2022:1) shows the importance of institutional IT policies by emphasising that the working conditions and operational hazards of public entities like universities necessitate the use of customised IT policies and systems.

5.6.9 Theme 6: Perceived ubiquity

Ubiquity refers to wide network access to library resources housed on a cloud network/the internet accessible through common means from a wide range of internet-connected gadgets, such as desktops, tablets, and smartphones (Kumar 2021:4). This author opined that the library cloud or platform is ubiquitous, as it can be accessed from any location, at any time.

Based on the framework of this study, this researcher saw it fit to establish the accessibility of the implemented TM systems from individual workstations. This knowledge of systems' accessibility would enable the researcher to determine the ubiquity of Sierra/FOLIO at TM Library. For this section, the researcher made a telephone call for clarity with regard to what was meant by the ubiquity of the LSPs.

Question: In your line of work, how accessible are the resources from Sierra/FOLIO? For this question, the researcher made a telephone call for clarity, and comments from the nine participants included the following:

PB – "*I only use circulation and email function of Sierra which I access any time even when I am at home using my laptop. I have not used FOLIO yet."*

PC – *"For now, I access the Circulation function of Sierra to check in items and FOLIO for checking out (for returning) library items through internet or Wi-Fi."*

PD – "I access circulation function of Sierra to *create mini records (mini-cataloguing) for items that have not been catalogued so that the system can allow such items to be discharged. I also access FOLIO over the internet/Wi-Fi services provided by the university."*

PE – "*I use Circulation function to make bookings for items that are on loan, and record reserved items and these are always accessed through the university Wi-Fi."*

PF – *"Through the internet and* Wi-*Fi connectivity that we have, I constantly access the circulation function of Sierra and FOLIO to access statistics of daily borrowers and items on loan. Other functions like 'Acquisition' are restricted to other librarians' roles."*

PG – *"For now, I am using circulation function of Sierra and FOLIO to extract user statistics, which include overdue fines, and block users who have not paid their fines, as I am privileged to block and unblock users on Sierra. I am also advantaged to wave loans and override some restrictions like allowing a student to borrow more books if the library policy restricted her/him*

to a lower quantity. All these are instantly and constantly accessible even when I am working from home through the internet. The university Wi-Fi services also supplement the internet to allow for the smooth delivery and accessibility of our library services."

PH – "*I am already access the cataloguing function of FOLIO over the internet and Wi Fi to catalogue library material, as it has bibliographic databases, such as library congress, British national bibliography, and Trove to help me properly describe an item for easy access. I also used to access Sierra the same way during COVID-19, I was working from home."*

PI – "*During COVID-19, I used to access Sierra even when I was out of the campus though I have stopped using it for cataloguing so that I familiarize myself with FOLIO because soon Sierra will be completely phased out of my face. Like with Sierra, I access FOLIO wherever I am, and the accessibly is supplemented with the Wi Fi connection."*

PL – "*I do not use any of this platforms' functions because I only worry about the smooth access to Sierra/FOLIO which I access even when I am on leave because the systems are offered as SaaS on a cloud. That is, I see to it that all the functions of FOLIO are accessible and functional: No more installation, upgrading and maintenance to the systems, as such duties are now the responsibility of FOLIO providers."*

In fact, Sierra LSP was not fully implemented. Meaning, it was not fully functional due to a lack of funds to pay for all the modules and annual subscriptions. As such, it was used for the management of the print collection, impeding ubiquity/collaboration and sharing of resources. LSPs, as cloud-based systems, can be provided either as a SaaS, IaaS or PaaS mode. That is, outsourced software, infrastructure or platform offered by a cloud vendor as a service over the internet, and accessed from any internet-connected gargets, and have much to offer academic libraries: virtual storage, integration with other systems, virtual collaboration and sharing, electronic resources, platforms, off-line access, virtual office, and shared calendars (Kumar 2021). Scalability and ubiquity are the most appealing drivers of acceptance and use of cloud technology (Kumar 2017).

However, almost all the participants who were using Sierra/FOLIO stated that they accessed no function other than functions that were designated to their line of work through the internet and the university Wi-Fi. For instance, PB accessed the circulation function of Sierra and has not yet accessed FOLIO. PC, PD, PE, PF and PG (6) accessed the circulation function of both Sierra and FOLIO; while PH and PI (2) also used to access Sierra over the internet and Wi-Fi, and had already started accessing the cataloguing function of FOLIO through the same network

connections. PL (1) stated that access no longer dealt with systems maintenance, as it was the responsibility of FOLIO supplier. These findings implied that up to now, TM Library has been using only cataloguing, circulation, and OPAC functions of Sierra LSP, while Sierra was designed to offer more functions like acquisitions discovery, and ERM. Another considerable finding is that Sierra/FOLIO is accessible even when TM librarians are off campus, working from home.

Nevertheless, TM Library hoped that FOLIO would deliver at a cost lower than that of Sierra. Bai (2022:3) confirms that systems like FOLIO, Alma, Sierra, and Worldshare Management Solution operate on a service-oriented architecture. The introduction of the library services platform is thought to be possibly the most significant advancement because it enables librarians to manage electronic and digital content, and delivers it to library users through internet services (Grammenis & Mourikis 2019:11). With the library services platform, TM systems librarians could focus on the performance of the platform, accessibility concerns, upgrading of library interfaces, and making the integration of the library resources smoother and more user-friendly (Grammenis & Mourikis 2019).

5.6.9.1 Functions of FOLIO

PF – *"The assumption is if FOLIO is on the cloud, our library will be able to deliver library services and multi-format content any time regardless of geographical distance, and with the support of the on-campus Wi-Fi."*

PB – *"I am not sure because I don't know how FOLIO operates, as it has just been implemented."*

PG – *"For now, research content is accessed from the library website and portals. I train the faculty and students during orientations and User Education on how to access e-resources. These e-resources/databases (e.g. Elsevier, EBSCOhost, Heinonline, Emerald and SABINET) are shared on the TM Library website and Remote Access student portal, where students or faculties can access them from their mobile phones, laptops, TM computer lab or public internet cafes."*

PL – *"FOLIO is a ubiquitous system that TM staff will operate it anytime, anywhere to deliver content, which will similarly be accessed by students and faculty regardless of time and their geographical distances."*

The findings showed that not all TM librarians knew how FOLIO operates, as they were undergoing training. Sub-centres are not limited to choosing EBSCO for services because FOLIO is an entirely open-source system. EBSCO support to FOLIO includes: cloud hosting as a full SaaS, assisting with software setup, data migration, software upgrades, and customised development of new functionalities/apps (Enis 2022:41).

Apart from IT skills, IT use policy and guidelines, professional development, supervisor support and the involvement of all the stakeholders in the planning and implementation of new systems are essential for a successful adoption of FOLIO. Glusker, Emmelhainz, Estrada, and Dyess (2022:182-183) recommend that all staff members be treated equally. Staff parties, social gatherings, revising mission statements, and educating immediate supervisors are not sufficient. In order to boost staff morale, involvement and influence in the decision-making processes should be allowed, libraries must provide staff with appropriate remuneration, and staff should be given the same opportunity for advancement as other library employees (Glusker et al. 2022).

However, Chauhan et al. (2023:155) list the functions of FOLIO as the following:

- user interface; application program interface that enables integration;
- FOLIO community, as it is a long-term community-oriented project that utilises the community of different councils, such as Community of Council, Product Council, and Technical Council, in the management structure;
- choice-oriented service, as it can be customised to meet the needs of libraries and their users;
- FOLIO Codex, which is the micro-service FOLIO design in which interaction with various applications is made easy, and a concept utilised to describe a collection of metadata is “Codex” meant to manage metadata and a variety of formats regardless of location or coding, such as whatever the format, location or encoding, FOLIO can provide metadata about numerous resources with Codex unification and virtualisation stages;
- FOLIO with Cloud: due to the hardware requirements of FOLIO, it is recommended that FOLIO should be on the cloud, operating as SaaS to improve operations and make the system more innovative by providing the greatest availability, elasticity, robustness, and security, making it a futuristic system.

5.6.9.2 Sub-theme 2.3: Additional functions that TM librarians use

To further understand the extent to which content from Sierra/FOLIO is accessible, this research prompted the participants to voice additional functions of Sierra/FOLIO that they used. Noting the functions of LSPs presented in the literature review part of this study, this researcher believed the successful adoption and use of Sierra/FOLIO as LSP would be judged by operating as SaaS. That is why this researcher wanted to find out which additional functions participants used to understand the indicators of ubiquity of Sierra/FOLIO.

Question: In your role of work, what are the additional functions of Sierra/FOLIO that you are using? The following are the comments from the other four participants in this regard:

PD – "*I use email function of Sierra to send overdue reminders and mini catalogue function to discharge the items that are not catalogued."*

PG – "*Apart from physical consultations of users/researchers who come for specific information needs, I only interact with these users through 'Ask the Librarian' and email."*

PL – "*With these LSP, I only worry about the smooth access to these library platforms: seeing to it that all the functions of Sierra/FOLIO are accessible and functional: There is no more installation, upgrading and maintenance to the systems, as such duties are the responsibility of FOLIO providers."*

PM – *"For the management of staff performance, I have to be highly conversant with all the functions that the library was able to pay for: acquisition, cataloguing, circulation and OPAC."*

Learning from the findings, TM librarians were confined to using only three functionalities of Sierra, which were circulation, cataloguing and OPAC. From this point of view, and in relation to what features/modules TM bought, it may not be convincing to say that Sierra is an LSP. LSP is the library automation software implemented and maintained by the cloud vendor, where users can access full-text resources from any internet-connected devices from any location (Jayakumara 2022). University libraries can also be strong pillars of an open innovation environment for businesses by utilising social networking platforms (Gupta, Rubalcaba, Gupta & Pereira 2022). TM librarians serve students who spend most of their time on social media platforms, and these librarians can take this opportunity to adopt the use of Tik Tok: a social media site where users can make, share and find brief videos (Anderson 2020).

These videos include short advertisements for events and entire demonstrations of the library areas and holdings, and TikTok hashtags, such as librariansrock, librariansbelike, librarychallenge, and thisisalibrary (Anderson 2020:12).

In the context of this study framework, with a robust infrastructure and the technical assistance offered by the cloud vendor, ubiquitous library systems have evolved into a central data storage facility where users can access resources at anytime from any location (Tripathi 2017). Perceived ubiquity means the availability of network, sharing, and accessibility of content from the given technology at any time and from anywhere for both personal and professional goals (Tripathi 2017). Furthermore, for improved access to electronic and digital resources, collaboration and sharing, libraries use the library services platform, emerging technological application with built-in capabilities and customised web services, which are offered via the internet and as a service (Breeding 2012; Waterhouse 2018).

Judging from the findings, the definition of LSP, and the previous responses that indicated that most libraries are no longer using Sierra, and that TM Library was only paying for the cataloguing, circulation and OPAC functions of Sierra, the analysis was that Sierra was no longer ubiquitous. Ubiquity goes with resource pooling and sharing, and if the pool dries up because the vendor no longer provides support for Sierra, and most libraries were moving to innovative platforms, Sierra became a redundant system that needed to be phased out. If funds had not been a problem at NUL, apart from circulation and cataloguing, TM could have used Sierra for the acquisition and management of print, e-resources and digital materials, which could be accessed at any time from any place. As stated by Aiyebelehin, Makinde, Odiachi and Mbakwe (2020:17), it should be emphasised that cloud computing brought services that are employed to transform manual library processes to virtual functions, allowing for easy access and retrieval. However, to effectively utilise cloud computing services in institutions, libraries should provide for proper awareness/sensitisation, Wi-Fi, and e-resources.

5.7 Challenges experienced by tm librarians while using Sierra/FOLIO

In this section, the aim of this study was to point out difficulties TM librarians encountered when utilising their systems in order to recommend possible solutions for the successful adoption of Sierra/FOLIO.

5.7.1 Challenges of Sierra LSP

For this section, the question was broken down into two questions: the first question asked the participants from cataloguing, circulation, system and management sections to mention the challenges of Sierra, followed by the challenges of FOLIO.

Question: What are the challenges you experienced while using Sierra?

Out of 13 who signed the consent, the nine participants who experienced challenges with Sierra said the following:

PB – *"All library systems, be it, Sierra/FOLIO, need some IT/ICT skills in order for librarians to cope with them."*

PC – *"Sierra relied on the availability of internet and electricity."*

PD – *"Sierra needed electricity backup (which we don't have) in cases of power outages."*

PE – *"It was not clearly communicated why Sierra is being phased out, making us feel like we are not part of TM staff."*

PF – *"Not all of us are privileged to unlock students who have paid their fines when they produce proof of payment and want to borrow more items, forcing us to tell the students to come back later when the privileged librarian is on duty. Sometimes (if time allows) we call such a librarian to come to work and unlock students."*

PG – *"Since Sierra is not integrated with Registry and other NUL systems, the overdue statistics is manually retrieved from Sierra and populated into ITS to expose students who want to get away with library items. Some of the Sierra functions are slightly different from FOLIO functions (e.g. patron "ID and item barcode are on the same field on Sierra, while they are separated on FOLIO)."*

PH – *"Sierra did not capture all the records from its predecessor, Millennium during the migration phase, compelling us to populate the remaining records manually."*

PI – *"The incomplete migration of records from Millennium to Sierra increased our workload, as we had to capture the rest of the records manually."*

PL – "*Sierra was a built on a SaaS model to help libraries collaborate and manage all kinds of collections. However, as a proprietary software, Sierra was expensive in terms of annual*

subscriptions and maintenances, as NUL could not afford it due to financial problems, and NUL could only pay for three functions: cataloguing, circulation and OPAC."

PM – *"Sierra is expensive, and we experienced lack of financial support to sustain its upkeep; the vendor is no longer offering the upgrading support for Sierra, and as a result, most libraries have stopped using Sierra, blocking resource pooling and sharing among libraries."*

From the above findings, participants indicated the following as their challenges while using Sierra/FOLIO platforms: PB (1) said library systems, such as Sierra/FOLIO require librarians to have IT/ICT skills in order to operate them with ease. PC (1) said both Sierra and FOLIO rely on the availability of electricity and network. PD (1) mentioned a lack of electricity backup in cases of power outages. PE (1) was left with no sense of belonging due to a lack of strategic communication. PF (1) indicated limited privileges for blocking and unlocking students' who had overdue items, delaying the services at the serving point; PG (1) noted that the fields of Sierra and FOLIO are slightly different, causing confusion among librarians at the serving point, as Sierra was being used for returning library items, while FOLIO was used for checking them out. PH and PI (2) stated Sierra did not capture all the records from Millennium during the migration, compelling them to manually populate the rest into Sierra. PL and PM (2) acknowledged that Sierra was built on a SaaS architecture, and was a ubiquitous system that was intended to manage e-resources, and deliver the content to all TM communities, regardless of their locations. However, TM only used Sierra for the management of the print collection due to a lack of funds to integrate it with the NUL system (ITS) and to activate other Sierra functions.

5.7.2 Challenges of FOLIO LSP

Similarly, this researcher assumed that the challenges of FOLIO would also lead to the possible suggestion for the successful implementation and adoption of FOLIO. However, the researcher believed that some of the problems might already have been fixed by the time of reporting, as they seemed to be minor flaws that were caused by a lack of time to practice due to the ongoing training that might also have delayed customisation of the system.

Question: What are the challenges you experienced while using FOLIO?

Three participants did not respond to this question, claiming they were not yet conversant with FOLIO and were still on the learning phase. The five participants who had tried to work on FOLIO commented as follows:

PD – *"The process of creating a mini catalogue for the item that has not been catalogued is lengthy with FOLIO, wasting time for both students and librarians."*

PF – *"I am in a tedious and confusing situation of using two system, and in a hectic situation of offending the library users as we have started issuing books using FOLIO, and FOLIO displays only the quantity of borrowed items without their full description."*

PG – "*If an item has not been catalogued, the access assistants are able to create a mini record on a flier so that the system can release such item, which is not the case with FOLIO, causing a lot of confusion."*

PH – *"FOLIO did not capture all the records from Sierra, forcing us to manually capture the details of the records that have been left out."*

PI – *"With Sierra, I would get into the Circulation function and help student even if I am using a different function in my section, but with FOLIO, functions are restricted to individual sections. We are hoping to see this problem resolved as we keep on identifying challenges during this learning period."*

In the case of FOLIO, PI (1) stated that FOLIO restricts access to individual sections (e.g. a cataloguer may not be able to assist students at circulation). PD (1) showed that, unlike with Sierra, the mini-cataloguing process on FOLIO is very long, consuming time for both students and librarians; and PH (1) said that FOLIO did not capture all the records from Sierra, forcing librarian to populate such records manually. PF (1) said that FOLIO showed only the number of borrowed items without displaying their full descriptions, which offends students and leaves librarians confused and trying to resolve the system's issues in the presence of the queuing students. PG (1) observed that, unlike Sierra, FOLIO did not have the mini-catalogue function (flier), which helped the librarians to finish the cataloguing process and release an item to the borrower if it was partially catalogued or not catalogued at all. These statements implied that there was inadequacy of IT-skilled librarians at TM Library because the migration of records from Millennium to Sierra, and from Sierra to FOLIO was incomplete, yet the systems were already in use. According to Odocha et al. (2023:1), academic libraries face numerous obstacles that include shortage of qualified ICT librarians, internet issues, and irregular power supply. Idiegbeyan-Ose, Opeke, Aregbesola, Owolabi, and Eyiolorunshe (2019:1) rule out that any institutional success is largely dependent on its human resources, as dissatisfied staff result in poor job performance, high staff turnover, and instability.

5.8 Summary of the findings

ITAUM was used as criterion for obtaining a comprehensive understanding of the adoption and use of Sierra/FOLIO by TM librarians of the NUL.

5.8.1 Demographics of TM librarians

The majority (70%) of TM librarians were highly qualified, and TM Library continued to send staff to pursue librarianship studies, as some of the librarians were on study leave. TM Library also invested much in continuous training, as it offered in-house training and workshops on Sierra/FOLIO

5.8.2 Awareness

Only 30% of TM librarians could not clearly comprehend the phasing out of Sierra LSP, and the implementation of FOLIO LSP, while 70% of librarians were aware of the changes. The findings revealed the following three reasons behind this change: a lack of funding to sustain annual subscriptions and upgrading of Sierra, and to pay for all the Sierra modules, as well as a lack of support from Innovative Interfaces as a vendor of Sierra, which means that although it was not part of the ITAUM. Costs positively influenced the acquisition of FOLIO LSP, as the findings claimed that FOLIO was cheap because it is an open source LSP, while a lack of strategic communication may have a negative influence in the long run if not addressed accordingly.

5.8.3 IT skills and experience

More than half of TM staff were professional librarians whose postgraduate degrees encompassed IT courses, coupled with experience, and continuous in-house training, enabled even the under-qualified staff to understand and operate the implemented systems. That is, TM librarians' IT skills that were incorporated into their professional qualification, in-house training, and supervisors' assistance influenced the adoption and use of Sierra/FOLIO at TM Library. TM Library outsourced UKS, under the umbrella of EBSCO, for the migration of data from Sierra LSP to FOLIO LSP due to limited expertise on that matter. However, additional IT skills, such as migration of records from one system to another, ERM, customer care, presentation skills, searching skills, research skills, and social media skills (e.g. Facebook, Twitter, Tik Tok, chatbots, etc.) were recommended. Mabunda and Du Plessis (2021:1)

confirm that in order to remain relevant in this digital era, libraries are urged to integrate technology like social media, big data, and cloud computing in their daily operations.

5.8.4 Supervisors' support

The findings indicated that TM supervisors introduced continuous in-house training and workshops to impart IT skills related to the use of Sierra/FOLIO to all the library staff. All the participants, except one, said that TM supervisors were useful in assisting them with and reminding them about the tutorial in case they forgot what was taught during the workshops. These supervisors were even on call whenever challenges arise.

5.8.5 IT use policy, rules and guidelines

TM Library used pamphlets, email, verbal announcements, and meeting minutes to share sectional rules that governed the use of IT systems. According to the findings, the NUL IT use policy, from which all the university departments draw their rules and guidelines, had not yet been finalised.

5.8.6 Perceived usefulness

In Lesotho, TM Library is the leading library in the implementation of advanced library systems, such as Sierra and FOLIO. While Sierra was not fully implemented due to financial challenges, FOLIO was intended to manage all the library collections, including branch libraries. TM Library could not afford to pay for all Sierra modules, and opted for circulation, cataloguing, and OPAC modules only. On the other hand, FOLIO, as a new LSP, was also not fully implemented, as TM staff were still undergoing training, and FOLIO had not yet been integrated into ITS, which was the main NUL system.

5.8.7 Perceived ease of use

Although Sierra was not fully functional, TM librarians who used Sierra found it easy to use and felt it improved their performance.

5.8.8 Perceived ubiquity

The accessibility of Sierra/FOLIO was made easy with the use of internet and Wi-Fi. TM librarians could even access Sierra/FOLIO off campus, when they were working from home. The upgrading and maintenance were no longer done by TM systems librarians, but were now the responsibility of EBSCO/UKS as vendors who offered FOLIO on a SaaS mode. However,

a lack of electricity back-ups (e.g. generators) in cases of power outages at TM was the only factor that rarely hindered the use of Sierra/FOLIO.

5.8.9 Attitude

In the case of TM Library, all the mentioned constructs of ITAUM positively influenced the TM librarians' attitudes, which, in return, influenced their intention to actually adopt and continue using Sierra/FOLIO LSP. The constructs that influenced the attitude of TM librarians to intentionally adopt and use of Sierra/FOLIO included IT skills and experience, supervisor support, IT use policy, perceived usefulness, perceived eases of use, perceived ubiquity, and the intention to adopt and use LSPs.

To be specific, TM Library complied with ITAUM, as TM librarians' intention to adopt and use Sierra/FOLIO was motivated by IT skills that were infused in LIS qualifications; continuous in-house training and workshops. Cost of FOLIO as an open source LSP; IT use policy, rules and guidelines communicated in a form of hard copy pamphlets, booklets, meeting minutes, emails, and verbal announcements. When librarians approach the management to propose funding for the acquisition and implementation of new library systems, they should consider the costs of system implementation, such as IT skilled librarians, migration of records from the old system to the new one, maintenance, annual subscriptions, sectional computers/laptops to access the system, training, staffing and assistance (Taole 2008:186; Ajibade 2018).

5.9 Summary of the chapter

The findings showed that the constructs: librarians' attitudes, perceptions of their behaviour when using Sierra/FOLIO LSP, as well as their perceptions of the usefulness, usability, and ubiquity of Sierra/FOLIO, all positively correlated with their intention to use Sierra for circulation, cataloguing, and OPAC purposes. In the absence of adequate supervisor support for strategic communication, and the NUL IT use policy and guidelines, it was discovered that IT expertise, computer literacy, Sierra system manual, cataloguing manual, circulation manual, collection-building policy and the support of their immediate managers had an impact on TM librarians' adoption and use of Sierra, while TM librarians remained uncertain about FOLIO. In view of the objectives of this study, the results of this study are discussed and interpreted in the next chapter.

CHAPTER SIX: DISCUSSION AND INTERPRETATION OF THE FINDINGS

6.1 Introduction

The goal of this study was to understand the factors that influenced the adoption and use of the Sierra platform by TM Library Services. Based on the study objectives, the previous chapter presented the study findings. This chapter discusses and interprets the findings presented in the previous chapter. The discussion and interpretation of data were crucial because it allowed the researcher to make sense of the data analysis results, apply those meanings to lessons gained, and compare the insights to the existing literature or even personal experience (Creswell 2018:248). This study was guided by the ITAUM, using the combination of constructs of technology acceptance models from Davis (1989), Tripathi (2017), and Ajibade (2018) to understand the determinants of the adoption and use of the implemented platforms at TM library.

6.2 Demographic data of participants

The demographic data for the study participants are summarised in this section. Finding demographic data was crucial to help the researcher better comprehend the target group. The population for this study was TM librarians who were using Sierra/FOLIO in nine sections of TM library at the NUL. However, the study population was reduced to librarians who were using Sierra/FOLIO, and such librarians came from four sections: circulation, cataloguing, systems and management because TM could only afford to pay for circulation and cataloguing functions of Sierra. As TM librarians were thought to have the knowledge and skills necessary for this study, this researcher purposively selected the available and information-rich TM librarians for the interviews. Therefore, for the sake of this study, the librarians' perceptions were of the utmost importance.

The participants were asked to state their qualifications and the years of experience, where PA worked for eleven years. PB for nineteen years, PC for three years, PD for ten years, PE for six years, PF for thirteen years, PG for seven years, PH for five years, PI for twelve years, PJ and PL for five years, and PL for four years. Among the librarians who used Sierra/FOLIO, PB, PD, PF, PI, and PL also had experience of using Millennium, which was the predecessor of Sierra/FOLIO. The literature showed that experience in using technology, coupled with IT skills, influence the adoption and use of IT systems (Ajibade 2018). This form of experience equates to 10, 11, 12, 13, and 19 years of TM librarians' experience incorporated with their

professional qualifications, including IT courses, coupled with continuous workplace training and workshops, which was the influential factors for TM librarians to easily adopt and continue using Sierra/FOLIO LSPs.

The findings further revealed that out of the 13 participants, the highest qualifications of TM librarians were PhD (1) and master's degree (7), followed by BLIS (2) and DLIS (4). PC, PD, PE, and PF (4) who wished they were allowed to further their studies. However, the university was making an effort to improve professional development at TM Library, as 70% of librarians were allowed to pursue their degrees in LIS, and other related subject, with some still being on study leave, implying that the remaining 30% of librarians would get the opportunity once their colleagues have graduated. The university also supports continuous in-house training, and workshops to capacitate TM librarians with IT skills in order for them to keep up with technological advancements. The literature concurred that there is always a need for institutions to advance their staff's IT skills in order to help them cope with emerging technologies (Ajibade 2018; Parker & Grote 2022:1171).

6.3 Awareness of the implemented systems at tm

TM librarians were asked four questions to test their awareness of the implemented Sierra/FOLIO. These questions included those asking them the name of the system in use, when was Sierra/FOLIO implemented, describe FOLIO; and the reason why TM Library was migrating from Sierra to FOLIO. The findings revealed that all the 13 participants were aware of the implementation of Sierra/FOLIO.

6.3.1 The description(s) of the system(s) in use at TM Library

It was further discovered that TM used four different systems: PA (1) used CDSISIS for documentation and PJ and PK (2) used ITS for the acquisition of print and e-resources. This study concluded that for circulation, FOLIO was not fully implemented and Sierra was still being used as at the end of March 2023, when the data were being collected. At that time, only PH and PI (2) were using FOLIO LSP and RDA for cataloguing, while all the TM staff were busy learning and testing how FOLIO LSP operated. The pattern continued with TM librarians whose awareness of the implemented system, cloud automation, experience from previous systems, educational qualifications, supervisor support, strategic communication, and training influenced the adoption and use of Sierra when it was implemented. Similarly, the said

determinants, together with the IT use policy, would influence the timely adoption of FOLIO after the UKS and in-house workshops.

6.3.2 The time when Sierra/FOLIO were implemented

ITAUM fully explains the adoption and use of LSPs. With regard to the time of Sierra/FOLIO implementation, the findings continued to show that Sierra was implemented in April 2016, while FOLIO was implemented in January 2023. This was according to the announcement made in one the of the LELICO meetings of April 2016. According to the literature review in chapter two, Sierra and FOLIO are among the 4.0 systems that libraries value for their integration with institutional systems; management of print, digital and e-resources; integrated search; and discovery services (Krol 2020:41; Shah et al. 2020; Bai 2022:3). The literature further states that Sierra and FOLIO, as library services platforms, were designed on a multi-tenant architecture and utilised the cloud and online apps (Pradhan 2019:12).

However, ITAUM fully explained the adoption and use of Sierra/FOLIO, although neither of these two systems was ubiquitous yet owing to a lack of funding to pay for all the Sierra modules, maintenance, and annual subscriptions. NUL or TM IT policy, rules and guidelines were shared on pamphlets, booklets or circulars, which might be the reason for the adoption and continued use of crippled Sierra. IT policies defend and guide IT-related challenges (e.g. how to go about funding the procurement of technology system, security of IT facilities and data, system failure, a lack of support from system vendors, training, implementation, IT expertise, etc.) (Peet 2023). As concurred by the literature, academic libraries ought to formulate policies for updating technological systems, designing new hardware and software, and securing the preservation of materials, collaboration, content security, network security, content backup and system failure. University libraries should also safeguard their data and resources from damaging hacker attacks, invasions, spyware insertion, data abuse, and susceptibility recovery in software, hardware, and online materials (Farid et al. 2023:11-12).

6.3.3 The level of implementation and adoption of Sierra/FOLIO at TM Library

From this objective, this study attempted to seek the extent to which the implementation and adoption of Sierra LSP were successful, and if, by the time of data collection, TM librarians had already been using Sierra for seven years. However, by then, TM Library was moving to FOLIO, which means that TM librarians had adopted Sierra, regardless of its limited functionalities. Responding to this question, all the nine participants indicated that Sierra had

not been fully implemented, and they were in the learning phase of the newly implemented FOLIO. This showed that TM library did not benefit from the cloud nature of Sierra. If Sierra is offered on a SaaS mode to allow for collaboration and sharing of resources, Sierra services are compromised, agreeing with the literature that library consortia should share the costs of implementing library systems in order for the systems to be fully implemented and functional (Taole 2008).

In the case of FOLIO, the findings showed that FOLIO, as a newly implemented platform, was partially utilised, as PC, PD, PE, PF, and PG had started using it for circulation, while PH and PI had already stopped using Sierra, and had begun their cataloguing processes with FOLIO. However, from the follow-up questions that this researcher directed to three supervisors, it appeared that the library IT use policy, and TM communicated the guidelines in the form of pamphlets, emails, booklets, and verbal announcements.

The findings further indicated that although circulation staff seemed confused and tired of using two systems, they would continue to pair Sierra and FOLIO until the end of April 2023 when the migration of records from Sierra would be finalised. TM librarians preferred FOLIO over Sierra for the following reasons:

- FOLIO was cheap, as an open source SaaS;
- Vendor loyalty, as the vendor of FOLIO offered training;
- ERM capability of FOLIO;
- RDA cataloguing to enhance accessibility of resources on FOLIO platform;
- interoperability with NUL ITS and library systems;
- easy to use;
- discovery services (EBSCO Discovery);
- collaboration and sharing from a pool of resources;
- Virtualisation of computing gargets, such as servers;
- Automatic and virtual upgrading that is handled by the vendor;
- flexibility, as FOLIO grows with the demands of libraries.

Although 70% of the participants were happy and informative in response to the question why TM Library was phasing out Sierra, 30% of participants claimed that TM did not clearly communicate the news about the replacement of Sierra, as they did not know the reason why TM was replacing Sierra with FOLIO. An ineffective communication strategy that TM

supervisors used when sharing the news of FOLIO implementation might be the reason behind this confusion of using Sierra and FOLIO concurrently. The literature cautions that workplace environment can improve or worsen as a result of new technology systems with implications for well-being, involvement, performance, and safety of employees (Parker & Grote 2022:1197). Aslam (2022) further advises that library staff must rethink their usual methods of operation, improve their knowledge and skills, adopt a cooperative attitude, revamp policies and procedures, and develop a willingness to adjust.

Based on the findings, TM Library partially adhered to the conceptual framework of this study, which was ITAUM. The majority of the participants admitted that the implementation of Sierra was successful, while FOLIO was not adopted yet, as it had only been implemented during the year, on 31 January 2023. According to the literature, the ITAUM, which was the conceptual framework for this study, holds the influential factors as criteria for exploring the level of adoption of Sierra LSP at TM Library (Davis (1989; Tripathi 2017; Ajibade 2018). According to the findings, and guidelines, and Sierra's lack of web discovery services, Sierra's adoption and continued use was influenced by IT skills, supervisor support, perceived usefulness, and perceived ease of use. Secondly, TM librarians did not have a choice because there was no alternative system other than Sierra; else, they could not do their job. Thirdly, for NUL to have allowed the implementation and use of Sierra within the university system, which is a de facto IT use policy, TM librarians had no choice, but to use Sierra. This means that IT skills and experience, institutional IT use policy, supervisor support (facilitation of training and provision of manuals), perceived ease of use and perceived usefulness were the key factors that led to the adoption and continued use of Sierra, regardless of the limited functions of Sierra. This agrees with the literature that communication and transparency are among the determinants of successful adoption of library systems (Dadzie & Mensah 2022).

6.3.4 The reasons TM library migrated from Sierra LSP to FOLIO LSP

This researcher requested the participants to state reasons why, in their view, TM Library migrated from Sierra LSP to FOLIO LSP. Out of nine participants, PB, PC, PD, PE, and PF (5) claimed that the reasons were not formally communicated, but heard that TM was moving to FOLIO because Sierra was expensive. However, this researcher made a follow-up, and asked some of the TM supervisors how they communicated the news. These supervisors admitted they shared the news via emails, and it might be possible that some of their subordinates were

still unable to understand the utility of replacing Sierra with FOLIO, as they shared the news late.

The email alone would not be enough, as TM supervisors had to motivate their subordinates to accept the news. Supervisors' compassion, short meetings, verbal announcements, telephone calls, physical interaction as a follow-up of what the announcement said, and translating the news into local language would do better (Waterhouse & Mann 2021). The literature shared the reasons behind the supervisors' delayed announcements or lack of communication: supervisors assume it is not the right time to communicate change, as the announcement will upset staff; they think their staff know and clearly understood why there is change and what change brings; blame shifting: and supervisors might as well failed to share the news of what they did not clearly comprehend (Kavanagh et al 2015:260). The literature further states that the initial and formal notification of change is an essential ingredient of communication, which is needed for igniting change (Lewis 2019). The how and when massage and the method used for such an announcement typically set the mood, and may have an impact on the entire implementation process (Lewis 2019). The literature corroborate that in every organisation, communication with stakeholders is one of the key factors determining performance and the conduciveness in the work environment (Chan & Fabbi 2023). In addition to increasing motivation, a sense of belonging, and participation, allowing staff to voice their views, cutting the possibility of misconceptions, and enhancing workflows and policies that eventually result in enhanced performance, strategic communication has the potential to push the organisational success in many ways (Chan & Fabbi 2023:1). The literature further urges that when preparing for migration, the library must consider the following: time, expenses, financial means, and skilled labour (Mathar, Marwansyah & Ardinata 2020:1).

In order to minimise communication issues in workplaces, the literature rebuked that knowledge is an institutional asset rather than a personal possession, and managers should pay attention to why employees are reluctant to share their skills (Bilginoğlu 2018:61). This lack of knowledge among other TM librarians implied that not all the stakeholders were involved in major decisions of planning for the implementation of FOLIO LSP. This also implied that supervisors had not communicated and shared enough information to their subordinates about the replacement of Sierra and the implementation of FOLIO, demonstrating poor 'change' management at TM Library. The literature urges that putting a lot of weight on communication, continuous training, and workflow restructuring can prevent resistance to change and

inadequate utilisation of the new system (Kavanagh et al. 2015:268-269). As an emphasis from Alajmi and Alasousi (2018), even though the work environment must be designed to foster satisfaction, teamwork, inspiration, involvement and communication are also important for the growth and constant enhancement of subordinates' motivation. The literature continues to place a strong emphasis on the importance of openness, defined procedures, and communication to facilitate change and make implementation go smoother (Dadzie & Mensah 2022:1). Dahiru, Oladokun, Grand and Mutshewa (2020:252), on the other hand, urge universities to provide their libraries with enough funding, train staff in how to use new library systems; and deploy a legislative enactment to allocate adequate budget to the acquisition of library resources.

The scalability, affordability, accessibility, and user-friendliness of cloud computing have made it an essential component of both personal and commercial life (Alhosban et al 2024:1). As a result, TM Library acquired Sierra with the hope that it would bring new innovations for the library and its communities. However, PG, PH, PI, PL, and PM (5) cited Sierra's lack of interoperability, the NUL financial crisis, universities that have left Sierra for other platforms, and a lack of support from Sierra vendors as the reasons behind the implementation of FOLIO at TM Library. That is, in order to integrate and manage all the sectional collections and workflows in an affordable manner, TM Library opted for open source FOLIO because of discovery tools.

Addressing the challenge of funding to sustain library automation, Shaw and De Sarkar (2021:1) recommend that academic libraries should take the consortium route to acquire automation systems and resources in order to lower the cost of implementation, free libraries from the need to hire extra IT specialists, promote collaboration on a virtual platform and cut down on resource licensing repetition.

6.4 The factors that influence the adoption and continued use of TM systems

This section discusses five objectives derived from this study's conceptual framework of ITAUM to seek the level of adoption and use of TM library platforms. This ITAUM has influential factors, which are discussed below.

6.4.1 IT skills and experience possessed by TM librarians

Among the five objectives that were based on the conceptual framework of this study, this was the first objective meant to establish the IT skills that TM librarians possessed. According to the literature, librarians must have given their consent to accept and use the technology before being hired by the library (Ajibade 2018:9). As a result, in this scenario, the librarian's attitude, intention to use and use of technology are influenced by their verified IT skills and experiences (Ajibade 2018).

Contrary to what was anticipated in chapter one, TM librarians had skills that would help them to use Sierra/FOLIO with ease, conforming to the framework of this study. This was confirmed by the findings that revealed the following IT/ICT knowledge that had been incorporated in TM librarians' qualifications: database management. PC, PD, PE, and PF (4) had computer awareness and information retrieval tools, and PF had an additional IT certificate. PB, PH, and PI (3) had IT tools, digital libraries, information retrieval tools, database management, IT tools, project management, and web design skills. PB had extra knowledge in management skills; while PL (1) had information systems, digitisation, programming, project management, and web design skills. The literature also agrees with the study findings that academic librarians should acquire skills, such as a solid understanding of computers and software, internet information search and retrieval, computer networking, digital library/institutional repository, library automation and management solutions, social media, knowledge management, web design and hosting, ERM, reference management systems, collaboration and consortia, and copyright (Francis, Ajithakumari & Swapna 2023:119). Along with the aforementioned, Francis et al. (2023) continue to advise that taking the following aspects into account can also promote library services: presentations and communication skills, good manners, teamwork and negotiation abilities, and adaptability to various circumstances.

6.4.1.1 Supervisor's motivation for the adoption and use of LSP

When an applicant acknowledges the job offer, commit to abide by the library IT regulations and procedures while utilising the IT equipment provided by the library (Ajibade 2018:8) Supervisors keep an eye on how effectively the IT equipment is deployed and, as this is how they gauge the competency of the staff (Ajibade 2018). This sections discusses how supervisors assisted to adopt and use the LSPs at TM

Though TM supervisor did not involve and communicate with the stakeholders well in time, prior to the implementation of Sierra/FOLIO, they facilitated online training, workshops and in-house training for their subordinates, as well as sectional rules and regulations that stipulated procedures for carrying out daily processes using library systems. These supervisors are even available on calls whenever their subordinates need guidance. However, TM supervisors are not doing enough, as the findings revealed sluggish professional development at TM library. The level of stakeholders' involvement at TM library decision making like planning for the implementation of new system goes against the ITAUM, as it has a negative impact on the intention and actual use of FOLIO, leading to resistance to change.

Moreover, only if librarians are happy in their workstations that can they provide the greatest service to their patrons because the performance deteriorates if librarians are not placed in positions that match their passions and qualifications (Bharti & Shah 2021:23). Furthermore, senior librarians develop training plans, monitor the implementation and usage of new library systems by assessing the effectiveness of the entire staff once the staff has adopted the new system, implying that individual staff member will be eager to acquire IT skills, learn, and adopt the new system in order to enhance her/his performance (Ajibade 2018).

6.4.2 Additional skills that can improve performance while using LSP

The literature indicates that electricity supply problems, network problems, IT skills, learning, and automation systems still exist in Africa (Monyela 2020). To confirm this, participants suggested the following as additional skills that could improve their performance while using Sierra/FOLIO:

- advanced IT skills;
- PA (1) wished to have digitisation skills;
- PB (1) wanted to acquire research skills;
- PC, PD and PF (3) wished TM management could grant them permission to pursue their LIS studies (professional development);
- PG (1) suggested searching skills, social media skills, research skills, and presentation skills;
- PD (1) wanted to have skills on customer care;
- PH and PI (2) recommended RDA cataloguing as well as frequent in-house training on various sectional needs;

- PH and PI (2) suggested ERM skills.

According to the literature, there is a need for continued professional development in libraries so that librarians can acquire more IT-related skills (Chigwada & Chisita 2021). The literature continues to emphasise that IT proficiency promote ease of use of the new technology system, while social media skills can enable TM librarians to interact with library users for the benefit of resource sharing (Ajibade 2018; Cox & Tzoc 2023). Specifically, Howard, Huber, Carter and Moore (2018) indicate social media enable TM library users to do the following:

- access materials from any location at any time;
- a vast number of TM library users could effortlessly find the library wherever they choose,
- TM librarians could create an online forum where their patrons could interact and share fascinating and helpful information;
- TM librarians could use social media as a marketing tool.

The literature further suggests that academic libraries should be more conversant with technologies, such as digitisation and accessibility of archival/institutional records, metadata instruction software, instructional design solutions, a variety of classroom software applications. ERM applications and remote access of e-resources, integrated search tools, intellectual property/copyright administration solutions, online research tools like scholarly databases, upkeep of government and international resources (Francis et al. 2023:viii). Moreover, the literature concurred that, with library services platforms, digital preservation and scanning are possible: libraries can create documentation by centralising the digitisation and scanning processes to prevent the repetition of this laborious task (Jayakumara 2022:112).

6.4.3 The role of institutional technology use policy and guidelines

NUL/TM policy guided the selection, procurement, implementation, adoption and use of LSPs at TM Library. These findings were confirmed by the literature, which argues that staff IT expertise and experience encourage the ease of use of technology systems, whereas institutional statutes, policies and IT standards regulate technology adoption and intention to use such technology (Ajibade 2018:1). Regardless of the differing mission, vision, values, structures, and the culture of academic institutions, the literature recommends that for the systems to be properly implemented, it is very important for academic libraries to formulate the right policy guidelines in a plan to combine resources across the online platform (Shaw & De Sarkar 2021).

6.4.4 Perceived usefulness

This study's findings indicated that TM library could not fully leverage the functions to Sierra, as they were only using Sierra for the management of print collection, using functions, such as cataloguing, circulation and OPAC, due to a lack of funding to meet the demands of vendors. Chidiadi (2022) highlight that governments are not always at fault for the libraries' lack of budget, as it has been noted that university management frequently misappropriate monies intended for the advancement of the university libraries. Moreover, TM Library can partner with Lesotho consortium libraries to share costs for automation systems and library resources.

6.4.5 Perceived ease of use

TM librarians found Sierra easy to use and felt that it improved their performance, but assumed that training, IT skills, and the experience from using Millennium and Sierra would help them to cope with FOLIO. Therefore, Ajibade (2018:8) posits that the use of IT is not only based on its usability, but it also depends on the institutional culture that encourages staff training to improve their proficiency with library systems. For example, the circulation librarian who does the migration of the library records from Millennium to Sierra, should make sure that staff's and students' abilities are refreshed in order for them to use the system with ease.

6.4.6 Perceived ubiquity

As LSP is capable of fully supporting smartphones and tablets, perceived ubiquity refers to the individual librarian's perception of the availability of constant interaction with the LSP, as well as mobility (every time communication and the network are accessed, regardless of geographical distances, using the internet and Wi-Fi connectivity (Gallagher 2016; Tripathi 2017). This study enquired about the functionalities of Sierra to confirm whether Sierra was provided on a SaaS mode, which would prove that Sierra was a real ubiquitous system that would promote adoption and continued use, as validated by the study's framework. This section, therefore, discusses the findings on the functions of Sierra.

6.4.6.1 System's functions that TM librarians are using

Although literature shows Alma, FOLIO, Sierra, and Worldshare Management as examples of LSP (Breeding 2023), the findings confirmed that Sierra operates as SaaS, but due to a lack of funding to pay for its full functionality, TM librarians only used the circulation, cataloguing, and the email functions of Sierra. The literature clarifies that an LSP is a new breed of library

software that goes above the built-in features of an ILS, as LSP is founded on a multi-tenant SaaS platform, and utilises internet technologies, cloud computing, and discovery services to handle print, digital and e-resources, as well as other services, in one unified interface (Pradhan 2019:12). The literature further agrees that LSP is a cloud computing service that makes it possible for libraries to share a pool of configurable computing resources, such as networks, servers, storage, applications and services that can be supplied instantly and distributed with less effort (Kumar 2017).

If TM Library was able to fund all the features of Sierra, with annual subscriptions and maintenance, Sierra would be capable of integrating various library operations, such as ERM, circulation, cataloguing, acquisitions and more into a single user-friendly interface (Pradhan 2019). It was evident that Sierra did not comply with the conceptual framework of this study (ITAUM). Moreover, Sierra did not adhere to the Ranganathan's principal, which states that libraries should save the readers' time, because Sierra was not integrated and was no longer being upgraded, and it was performing as a locally installed system that could not be accessed at any time and any place, as per ITAUM (Chandel & Rai 2015:221; Ajibade 2018). Citing the literature, perceived ubiquity effects the organisation's intention to adopt and continue using cloud computing technologies (Tripathi 2017).

In the case of additional functions of Sierra, the findings revealed that other than the above functions, TM Library used flier/mini-cataloguing, ask the librarian and email as additional functions of Sierra. According to the responses received from further probing, this flier is a function within a circulation module of Sierra meant to allow circulation librarians to catalogue items that have not been fully catalogued, and issue them instead of denying library users access to such materials. As a resolution to the TM scenario, the literature posits that, nowadays, academic libraries operate in an environment with less funding, more competition and several new opportunities to acquire high-quality systems (Jain & Behera 2022:224), fuelling the necessity to reconsider how they acquire systems, and what constitutes as a cloud-based system or an LSP (Khozani et al. 2021; Kalyani & Bharathi 2022).

6.5 Challenges experienced by tm librarians while using lsp

The literature affirms that, if not entirely, print library materials are being replaced with e-resources (Ambali et al. 2022), as institutions are improving their adherence to emergent technologies, by automating library processes like acquisitions, cataloguing, circulation, and

development of virtual catalogues and other retrieval tools; establishing institutional repositories, creating library websites, and providing e-resource services to gain competitive advantage and rivals in the information management industry (Ambali et al. 2022:129). In the context of TM Library, the findings revealed the following challenges of TM librarians while using Sierra/FOLIO. PL and PM indicated limited functions of Sierra, a lack of support from the vendor of Sierra, libraries that have terminated the use of Sierra and shifted to progressive platforms; and a lack of funding; PC said Sierra relied on the availability of network and electricity. This challenge was not considered relevant because it was similar to purchasing a motorbike, knowing well that its mobility depends on petrol, and later complain that it uses petrol.

Likewise, it is a fact that Sierra/FOLIO needs internet/Wi-Fi and electricity to operate in libraries. However, persistent outages of these two may cripple the delivery of services, which, in turn, affects teaching, learning and research. As libraries are moving to a virtual space, they should be equipped with resources and facilities that allow them to operate seamlessly. Due to this, university libraries should consider budgeting for generators to back up electricity.

PD, on the other hand, indicated a lack of electricity backup in cases of power outages; PE indicated a lack of strategic communication. PF were prone to resistance to change due late involvement of the stakeholders, who were not engaged from the start during the planning, knowledge hoarding and a lack of strategic communication. PF limited unlocking privileges to the activation of students' accounts, forcing them to dismiss students in the absence of the librarian who is authorised to unlock students' accounts, which proves poor management of circulation processes. PH and PI Sierra did not capture all the records during migration, compelling librarians to manually populate FOLIO. PB stated that both Sierra and FOLIO rely on the availability of network and FOLIO restricts access to individual sections. For instance, a cataloguer may not be able to assist students at circulation, unlike with Sierra, the mini-catalogue is a long process on the FOLIO platform, consuming time for both students and librarians. With regard to the challenges of FOLIO, this study concluded that some of its challenges were due to the fact that the system had not been fully implemented. Even the configuration processes had not yet been completed at the time of the study. After the migration of records, the second major step is configuration of LSP, which entails enabling the discovery applications, accessibility, websites and library guides, capturing/populating library user credentials, allocating roles/functionalities per librarian, review and configuration of strategic

information like rules, guidelines, and policies that govern the acquisition, cataloguing, and circulation roles before being configured (Waterhouse 2018:6-7). The researcher also observed panic that might lead to human errors, as TM librarians were still learning and familiarising themselves with FOLIO. This means that in early stages of implementation, where technicians and librarians who are using the system are still running some tests, confusion, technical errors, system errors, and human errors are rive, and minor challenges that can be avoided or addressed in a short period of time, are reported as serious matters.

PG Sierra was never integrated with the university systems due to a lack of funding to pay for all the modules, maintenance and annual subscriptions of Sierra, being the reason for TM Library to implement open source FOLIO, as it was cheaper, and the functions/fields of Sierra and FOLIO were slightly different, causing confusion among librarians. Librarians were confused with the concurrent use of Sierra and FOLIO due to incomplete migration of records from Sierra to FOLIO (e.g. Sierra is used for returning library items, while FOLIO is used for checking out items), which also forced librarians to populate such records manually, limiting the number of items for students, and stopped them from borrowing again. With regard to proposing the implementation of the new library to the funder/university management, Taole (2008) advises librarians to communicate all the requirements for the implementation, including implementation/installation costs, maintenance and licensing/subscriptions, training and more. Moreover, libraries can also purchase systems through their respective consortia to share the costs (Taole 2008).

In view of these challenges, such as poor supervision, and strategic communication, as TM supervisors failed to announce the implementation of FOLIO. PB, PC, PD, PE, and PF (30%) who claimed they did not receive proper communication as to why TM Library was phasing out Sierra LSP confirmed this. Secondly, librarians dismissed students at the serving point if the librarian who was authorised to unlock students' accounts was not available. Although this claim was not part of the requirements of ITAUM, it could lead to resistance to or delayed adoption and use of the current FOLIO and RDA in TM Library, as well as the projected implementation if left unattended. Gallagher (2016:21) recommends that for the successful implementation of library systems, all the key stakeholders (e.g. acquisitions, circulation, cataloguing, e-resources, IT units, and archives librarians) should be involved in every step of implementation, starting from the planning phase. This means that TM Library's communication systems should implement a clear and transparent communication strategy.

Numerous studies value strategic communication as key in any implementation (Waterhouse 2018). The literature shares the following, as reasons behind the supervisors' delayed announcements or lack of communication: supervisors assume it is not the right time to communicate change, as the announcement will upset staff; they think their staff know and clearly understand why there is change and what the change brings; blame shifting: and supervisors might fail to share the news of what they did not clearly comprehend (Kavanagh et al. 2015:260). In addition, TM Library did not heed the fourth and the fifth level of the Maslow's hierarchy of need. Alajmi and Alasousi (2018) list the fourth level in Maslow's hierarchy as the need for self-esteem needs, which includes requirements of librarians' self-worth and self-image, such as the need to be respected by the library administration, and to be recognised for their achievements. In the context of libraries, self-actualisation (as the fifth level of Maslow's hierarchy of needs) is the level of demand, which entails providing librarians with numerous tools to advance both the libraries and themselves (Alajmi & Alasousi 2018).

The literature further reveals that librarians now recognise the value of cloud computing services, as they have implemented library services platforms for their discovery functions, where stored and robust content can be retrieved by patrons from anywhere at any time (Jayakumara 2022). As a general observation, although TM Library had adopted Sierra (for more than seven years collectively), and FOLIO as LSP, the benefits and use of these platforms had not yet accommodated the LSP functionality. That is, Sierra had not been fully implemented, as it was only used for the management of print materials. Secondly, a number of libraries have stopped using Sierra, which impeded sharing and corroboration. FOLIO, on the other hand, had also not been fully implemented as TM librarians were in the learning stage. Only two cataloguers had started using FOLIO.

6.6 The extend of LSP adoption at tm

This section addresses the three main questions of this study in summary.

To what extent have TM librarians adopted and used library services platforms from 2016 to 2023 when they migrated to FOLIO LSP?

In response to this question, from 2016 to 2023, when TM Library migrated to FOLIO LSP, neither Sierra nor FOLIO had been fully implemented although Sierra had been adopted. FOLIO has recently been implemented, and only TM cataloguers have started using it, while also learning how to use the RDA for cataloguing. As such, RDA was also not fully

implemented either. The literature observed that sub-Saharan countries are gradually adopting RDA, which is a complete set of rules and guidelines on the description and access of all the information sources and media, although challenges like ICT skills, costly RDA toolkit, not being able to comprehend how RDA really works, training, funding, and absence of local experts to train librarians may negatively affect the implementation of RDA (Monyela 2020:1).

Given the scenario of TM Library, and the factors that influenced the adoption and use of Sierra, it was hoped that TM supervisors would do the same with FOLIO/RDA, and help their subordinates to comprehend and adopt these new systems, as their teaching skills and experience strengthen with every new implementation. Moreover, they are local trainers even though they have obtained their knowledge from the systems, which amplified the successful implementation of FOLIO and RDA.

What are the factors that influenced the adoption and use of Sierra/FOLIO by TM librarians?

This study used ITAUM as a criterion to understand the adoption and use of LSPs by TM librarians. This section presents factors that influenced to the adoption and use of LSPs at TM library. These factors include IT skills and experience; supervisor's support; IT use policy, rules and guidelines; perceived usefulness; perceived ease of use, and perceived ubiquity.

Supervisor's support and IT use policy

Institutions recruit librarians based on the IT skills. By signing the employment contract, the librarian commits to the use of the library systems guided by the institutional IT use policy, rules, and guidelines. The immediate supervisor who weighs and decides the competency of the subordinates by monitoring their work commitment and performance while using the library system (Ajibade 2018) observes the use of the library system later. Ocks and Gabriel (2021) corroborate that ICT policy, financial support, and continuous training are critical in maintaining library sustainability and relevance.

IT skills and experience influence attitude

It skills and experience promote ease of use of library systems, while institutional rules, policy and IT guidelines influence adoption and intention to use the library system. Promotion anxiety, opportunities and goals also influence attitude to accelerate the willingness to improve system use in order to enhance performance for promotion Ajibade (2018:9).

Perceived usefulness

Perceived usefulness is defined as the employee's assumption that utilising the technological system will enhance his/her performance at his/her workplace (Davis 1989:985). As per the ITAUM, perceived usefulness and perceived ease of use positively affect the TM librarians' attitudes, which, in return, influence their intentions that lead to the actual use of LSP. According to the findings, the participants commented that Sierra enhanced their performance by helping them to accomplish their circulation and cataloguing processes faster. TM cataloguers were uncertain about FOLIO, as they were not yet conversant with it, and were still attending training workshops on FOLIO and RDA systems.

Perceived ease of use

Perceived ease of use is the employee's assumption that the system will be effortless, and improve productivity (Davis 1989). The findings indicated that the participants found Sierra free of effort, and promoting productivity. They could not say the same with FOLIO because they were in a learning phase. According to Tripathi (2018), ease of use of the library technological systems is motivated by IT skills and experiences.

Perceived ubiquity

Ubiquity is defined as network/accessibility of the platform that allows collaboration. The findings showed that neither Sierra nor FOLIO was fully implemented, as this study took place during the transition phase from Sierra to FOLIO. That is, Sierra was not fully implemented, leaving TM resources and database to be accessed from the TM Library's website. ITS was being used for acquisitions, while the FOLIO vendor and TM supervisors were busy training TM staff from all library sections. Resources are were pooled in a multi-tenant infrastructure known as cloud computing, and challenges that impede accessibility of resources could erupt from within and outside this common space (Sighom, Zhang & You 2017: 11).

Attitude

Attitude refers to individual's willingness or rejection to continue using the new system, which in turn, influence the actual use of a technological system (Davis 1989). Although both Sierra and FOLIO were partially implemented, all the ITAUM constructs, except ubiquity (IT skills, supervisor assistance, library IT use policy, rules and regulations, perceived usefulness, and perceived ease of use) positively influenced the adoption of Sierra at TM Library (Tripathi

2017; Ajibade 2018). FOLIO was not fully functional, as the implementation was incomplete, being the reason for TM Library to pair it with Sierra, which was due to be phased out completely.

6.7 The study findings

As a fundamental premise of epistemology, the first issue for this chapter is to acknowledge the significant discussion of the study's interpretive standpoint in Chapter 4. The researcher was able to address the fundamental processes involved in creating and comprehending texts because of the epistemological framework that underpinned the use of text in this qualitative study. The full scope of Chapter 4 lays the theoretical and epistemological foundation for the more applied portions of this study, which will inform other studies about conducting qualitative research on the adoption of LSPs. According to interpretive philosophy, scholars must enter the environment that creates social processes in order to comprehend them (Grammenis & Mourikis 2018). Since academic libraries are well-organized systems of people and technology, this study looked at the level of adoption of LSPs by TM librarians. Opting for the interpretive philosophy also helped this researcher to conceptualise and interpret ITAUM as a framework for this study.

This chapter discussed how the ITAUM constructs influenced IT skills and experience, supervisor support, institutional IT use policy, rules, and guidelines, perceived usefulness, perceived ease of use, perceived ubiquity, and the intention to adopt and use Sierra/FOLIO by TM librarians. All the ITAUM constructs had a considerable influence on the adoption and use of Sierra/FOLIO LSPs by TM librarians. The first objective of this study was to assess the extent to which Sierra/FOLIO LSP had been adopted by TM librarians. This came after the recognition that TM had a tendency of changing systems, and this study attempted to find the root cause of this frequent changes. More than half of the TM staff comprised professional librarians with IT skills. The findings proved the relevance of ITAUM on the assessment of the adoption and use of LSPs, as they revealed the following:

- TM Library was phasing out Sierra, and replacing it with FOLIO that would integrate with NUL systems and interoperate with RDA.
- **IT skills and experience** – IT skills obtained from continuous in-house training, workshops, and experience promoted the adoption and use of LSPs by librarians at TM Library. A considerable number of TM librarians had additional IT skills incorporated

into their professional qualification, showing a need for them to continuously update their IT skills.

  - During data collection, it was found that a notable number of TM librarians had much experience in using library systems (CDSISIS, DSpace, ITS, Millennium, Sierra).
  - TM librarians attended workshops on how to use on FOLIO and RDA. TM librarians possessed IT skills, such as database management, digital libraries, information systems, IT tools and knowledge management.
  - TM librarians proposed the following as additional skills that can improve performance while using Sierra/FOLIO: ERM skills, digital skills, research skills, professional development (e.g. to be allowed to further their studies up to at least Bachelor's or Master's Degree or PhD), cataloguing skills, public relations, search skills, social media skills, presentation skills, and continuous training/workshops on RDA.

- **Supervisors' support** - through training, supervision, and monitoring of the use of LSPs influenced the adoption and use of LSPs at TM Library. TM supervisors invested in continuous in-house training to upskill their subordinates on new library technologies.
- **Institutional IT use policy, rules and guidelines** – it is not clear whether NUL IT use policy has been completed or even existed, but TM IT rules and guidelines motivated the intention of librarians to adopt and use LSPs.
- **Perceived usefulness** – Sierra enabled librarians to accomplish their tasks in time and improved their performance, influencing the adoption and use at TM Library. Upon the implementation of FOLIO, TM Library implemented RDA cataloguing for the accessibility of the collection in all formats. TM librarians perceived that FOLIO would meet their needs, and help them deliver timely and quality services to their Google-oriented communities, as FOLIO was founded on the ideas from librarians, developers and vendors.
- **Perceived ease of use** – The fourth objective of this study was aimed at establishing if Sierra/FOLIO was easy to use. This study discovered that TM librarians found Sierra free of effort when using it, motivating their intention to use it.

- **Perceived ubiquity** – The fifth objective of the study aimed to establish the accessibility of Sierra/FOLIO LSP. TM LSPs (Sierra, FOLIO, and RDA) were partially implemented, and accessed over the internet and university Wi-Fi.
    - TM Library did not benefit from the nature of Sierra, as NUL was in a financial crisis, and could fund all the functions that Sierra offered. As a result, TM Library had paid for only the circulation, cataloguing, and the OPAC functions of Sierra.
    - Innovative Interfaces Inc. was no longer upgrading Sierra, and other university libraries were leaving it for more innovative platforms, making Sierra even more redundant at TM Library.
- **Attitude** - Through supervision and monitoring regulated by IT rules and guidelines, all the ITAUM constructs motivated the adoption and use of LSPs at TM Library.

6.8 Summary

ITAUM shows that ease of use of LSPs is influenced by the librarians' IT skills and experience, supported by the assistance of supervisor who monitor the compliance of NUL or TM IT use policy, rules and guidelines for productivity. On the other hand, all the factors (NUL or TM IT use policy, rules and guidelines, perceived usefulness, perceived ease of use, and perceived ubiquity) directly influenced TM librarians' attitude, which motivated the actual use of LSPs at TM Library. The literature indicated that academic libraries are implementing and adopting LSPs for SaaS and other strategic significances, including the following Kumar (2021:4-6):

- LSPs, as SaaS offer elastic storage capacity;
- reduced cost of institutional hardware and hardware, as LSPs are supplied by software vendors as a hired software service, and the payroll shrinks, as most library services are provided on a SaaS mode over the internet;
- timely provision of resources without much effort; content discovered in cases of disaster;
- reaching out to patrons/ubiquity as library resources are within reach, and patrons access them from any internet-connected devices, such as phones, laptops or desktops, and they access these resources at any time and from any place;
- an automated LSP updates as the platform is maintained and upgraded by the vendor.

Similarly, the cost of FOLIO, EBSCO/UKS loyalty as the vendors of FOLIO, flexibility, ubiquity, usefulness, perceived ease of use of FOLIO, IT skills and experience, supervisor support, and NUL IT use policy influenced TM to implement, adopt and use Sierra/FOLIO LSP. That is, TM found Sierra easy to use, and useful as a ubiquitous system that allowed them to access it from home, using their phones and laptops, thereby extending the network and access.

6.9 Lessons learnt

Individual and consortium libraries can benefit a great deal from the implementation, adoption and use of LSPs. Specifically, LELICO members, including all types of libraries in Lesotho can benchmark from the experience of TM library. This study explored the adoption and use of LSPs by TM librarians using ITAUM, and the following were the lessons learnt:

- Virtual technologies/platforms can help Lesotho and other developing countries to attain the Sustainable Development Goals (SDGs) for the betterment of their citizens' livelihood, as countries have become interested in leveraging technological advancements to help accomplish the SDGs set forth by the United Nations (UN) (Mbagwu & Iroeze 2024).
- The adoption and use of LSPs solely rely on the institutional IT infrastructure and readiness, which include IT-skilled librarians, continuous workplace learning/in-housed training, IT policies, rules, and guidelines, supervision and monitoring;
- After the eruption and spread of COVID-19, the initial development, creation, dissemination, and storage of information in libraries changed, accelerating the implementation of innovative technologies at TM Library (Mbambo-Thata);
- **Communication –** The findings revealed that TM supervisors did not appropriately share the news about the decision to phase out Sierra in time, as 30% of librarians claimed not to have received a formal communication as to why Sierra was being replaced with FOLIO. Strategic communication is a key factor that supervisors should provide to be at the same level of knowledge with all the stakeholders from the initial stage of planning to the implementation of the system (Waterhouse 2018:5);
    - With the inclusion of communication, ITAUM can be a more useful model in the investigation of LSPs and other technology systems. That is, ITAUM should comprise constructs like strategic communication, IT skills and experience, IT

use policy, supervisor support, perceived usefulness, perceived ease of use, perceived cost, and perceived ubiquity (though obvious),

- Notices/announcements displayed on the library website, physical/virtual meetings, staff WhatsApp groups, and emails can help the supervisors' voice to reach all the stakeholders for the successful implementation of any system.

- **Cost** – It was evident from the case of TM Library that cost can positively influence organisations to adopt and use LSPs;
- Vendor loyalty is key to the implementation, adoption and use of technological systems;
- **IT skills** – As against professional qualifications that librarians acquired years ago, skills acquired from continuous training on the implemented systems motivate the acceptance and use of the new system, as new technologies bring new ways of accomplishing library processes;
- **Vendor support/loyalty** – the vendor support, such as training and maintenance of the system motivate the organisations to trust, accept and continue using the technological system;
- **Supervisors'/senior librarians' assistance** – Play a critical role in the implementation, adoption, and use of LSPs, as they do not only train, but also ensure that the staff understand and use the technology to achieve the intended goal, and improve their performance. TM librarians were able to use Sierra/FOLIO with the support of their supervisors;
- **IT use policy** – Library rules and guidelines stipulated in pamphlets, booklets and meeting minutes helped TM staff to use Sierra/FOLIO LSP;
- Using technological systems was not by choice, but staff had to comply with the TM rules/supervisors' orders that said the systems would be used to perform library tasks;
- **Perceived ease of use** – TM librarians found Sierra easy to use by increasing their productivity, while they were uncertain about FOLIO, as they were in a learning phase;
- **Perceived usefulness and perceived ubiquity –** Sierra was not fully implemented, as TM Library was using it for cataloguing, circulation, and OPAC, leaving TM Library with scattered collections: historical records in archives, grey literature in the documentation unit, and other materials in the library stacks and library website, which

impeded easy access**.** With a fully implemented LSP, all the TM Library sections and their collections would be integrated, and accessed from one single interface;

- **Open source FOLIO** – When compared to other libraries in Lesotho, TM Library was at the forefront in technological advancements, yet it still faced the same complications that academic libraries in developing nations do. TM Library acquired Millennium, then Sierra LSP, which was now being replaced with open source FOLIO. Other libraries can benefit from TM experiences by presenting the implementation of technology systems in accordance with their own needs;

- **RDA** – LSPs are becoming popular options for libraries today (Shaw & De Sarkar 2019), calling for international cataloguing standards, such RDA to make the various types of resources housed by the SaaS platforms like Sierra/FOLIO accessible. However, TM Library could not afford the subscription and maintenance of a proprietary Sierra LSP, which was also becoming obsolete due to a lack of support from its vendor, and libraries withdrawing from the use of Sierra. In response to challenge, preparedness, vigilance, outcomes, and creativeness, as well as IT knowledge for appropriate planning, selection, and implementation of the new system are essential in this era of rapid technological change;

- **Collaboration** – Accessibility of resources, regardless of time and geographical distance. There was a hope that with FOLIO LSP, TM Library would be exemplary to be the first to collaborate on a SaaS platform.

6.10 Conclusion

The final stage of a research project is a conclusion that explains to the reader what the researcher discovered, and how valuable his/her discovery was (Hofstee 2006). LSPs, as cloud computing software, provide libraries with computing infrastructure on a virtual space using either hybrid, public, private, and community (a multi-tenant platform that enable collaboration and sharing of resources). For the assessment of adoption and continued use of LSPs, influential factors are reported to be appropriate for such assessments. To understand these factors, the literature suggested various models for technology acceptance, and TAM is the most popular and compressive model used in studies that investigate technology acceptance and use. This study concentrated of the factors that influenced the adoption and use of LSPs by

librarians at the NUL library. For the conceptual framework, this study integrated constructs from TAM created by Davis (1989), ETAM by Tripathi (2017), and TAUM developed by Ajibade (2018) to develop ITAUM for this study. A set of constructs used from ITAUM included IT skills and experience; supervisors' support; institutional IT use policy, rules, and guidelines; perceived usefulness; perceived ease of use; and perceived ubiquity and attitude. ITAUM, therefore, was used to understand the factors that led to the adoption and use of Sierra/FOLIO by TM librarians.

All the factors (IT skills and experience; supervisors' support; institutional IT use policy, rules, and guidelines; perceived usefulness; perceived ease of use; perceived ubiquity and attitude) influenced the adoption and use of Sierra/FOLIO LSP at TM Library. NUL is a well-established university in the country, which invested in continuous staff training. ITAM fully explains the adoption and use of LSPs at TM Library. Neither Sierra nor FOLIO was ubiquitous, as Sierra was only being used for cataloguing, circulation and OPAC. Therefore, at TM Library, supervisors continuously facilitated in-house training, and monitored the performance of their subordinates while using technology systems. IT skills that emanated from LIS qualifications and continuous training to improve IT skills on the emergent technologies; long-term experience of using library systems. IT policy, rules and guidelines in the form of pamphlets, booklets and meeting minute; perceived usefulness, as Sierra was fast and improved the librarians' performance; and perceived ease of use, as Sierra was effortlessly accessed and used.

The semi-structured questions were based on ITAUM. Data were collection from TM librarians who were using Sierra/FOLIO and were involved in the decision making regarding the procurement of TM library systems. That means that this study adds to the existing literature of cloud computing in libraries by assessing the factors that influenced the adoption and use of LSPs. Learning from the analysis, ITAUM can also be extended to include strategic communication in studies that explore technology acceptance and use.

CHAPTER SEVEN: SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

The previous chapter discussed and interpreted the results of this study. The objectives of this study relied on ITAUM, and served as a foundation for the discussion and interpretation based on the findings in chapter four. The purpose of interpreting the findings was to help the researcher summarise and categorise the data in order to address the research problem. The summary, discoveries and recommendations are presented in this chapter. Providing a summary of the research, and making the rational of this study's development is the most significant goals. As a result, a summary will recap the key data bolstering the study's primary claims and serve as a helpful reminder of their merits to the reader. This researcher has emphasised the significance of this study in the conclusion, while recommendations offer particular treatment meant to tackle the challenges mentioned in the findings. Consequently, reacting to important conclusions drawn from the gathering and examination of data.

7.2 Summary of the findings of the study

Before moving on to the actual conclusions, researchers briefly and carefully inform readers of the key results and sub-conclusions in the summary of the findings (Hofstee 2006). For this summary, the chapter highlights the crucial elements and a synopsis of the initial context, briefly summarising the key ideas related to the study objectives stated in section 1.4 of chapter one. These objectives are to assess the extent to which TM librarians have adopted the library services platforms since 2016 to January 2023 when they implemented FOLIO, to discover the factors that have influenced the adoption of FOLIO LSP by TM librarians, and to recommend a guideline for the successful adoption and continued use of LSP at TM. This researcher prepared a summary based on ITAUM as discussed below.

7.2.1 The level of LSP adoption at TM from 2016 to 2023

The first objective of this study was to assess the extent to which TM librarians have adopted the LSPs since 2016 to January 2023 when they implemented FOLIO. Firstly the study provides an overview of the systems used by TM library and their level of adoption as the following:

- TM used the library module with the ITS, and this module did not meet the requirements of TM library, as it was never upgraded, resulting into failed adoption;

- TM acquired Millennium ILS, which had some shortfalls, as it was designed for the management of print, while TM needed a system that would enable ERM, collaboration and sharing of resources;
- In 2016 TM implemented Sierra LSP offered on a SaaS mode, which they were now phasing it out due to lack of vendor support, funding, and libraries that have stopped using Sierra LSP.
- 1n January 2023, TM decided to phase out Sierra LSP, and migrated to FOLIO LSP because it was cheap as an open source platform. FOLIO, as SaaS, used EBSCO discovery services that would enable ERM, as it would be integrated with the university ITS;
- At the same time (January 2023), TM implemented RDA to enable cataloguers to describe the multi-format library collection (print, digital, electronic, audio visual, and more) for easy access.
- TM librarians were using both Sierra and FOLIO up until April 2023 when the migration of records from Sierra to FOLIO would be completed. Sierra was not fully impended as TM used only the cataloguing, acquisition and OPAC functions. The same way FOLIO and RDA were new systems that were partially implemented, as TM librarians were undergoing training.

7.2.2 The factors that influenced the adoption and use of Sierra/FOLIO at TM

Section 7.2.1 discussed the TM LSPs and their adoption since 2016 to 2023. The second objective of this study was to find the factors that influenced the adoption of LSPs at TM library. In this section, the study used ITAUM as a criteria to establish the factors that led to the adoption and use of LSPs by TM librarians. In order to accomplish this, the study assessed the TM librarians using the ITAUM constructs, such as IT skills and experience, IT skills and experience, supervisors' support, NUL IT use policy, rules and guidelines, perceived usefulness, perceived ease of use, perceived ubiquity, and attitude. At TM Library, the IT knowledge that the vendor of FOLIO offered, the continuous workplace training, IT skills embedded in TM librarians' LIS qualifications that helped them to understand English as a second language and IT terminologies influenced the adoption of LSPs. The experience that TM librarians obtained from using ITS, Millennium, and Sierra was another factor that influenced the adoption and use of FOLIO LSP by TM cataloguers.

Upon the acceptance of NUL IT use policy, supervisors monitor the use of library systems, observe the staff performance, and decide whether the system can be used or rejected. Below are the initiatives of TM supervisors in a bid to help subordinates to adopt and use LSPs:

- For the successful adoption and use of LSPs, TM supervisors held continuous training workshops for their subordinates;
- Some of these workshops were made virtual to accommodate even those who were on leave or off duty, as well as librarians working at branch libraries;
- These supervisors drafted library IT systems rules and guidelines, and shared them in a form of pamphlets, booklets, and email;
- TM supervisors were also on call whenever their subordinates needed their assistance.

IT skills, experience and supervisors' support that influenced the adoption and use of Sierra/FOLIO LSP. This section discusses the TM IT use policy. IT use policy, rules and guidelines stipulate what system should be acquired, what system users are allowed and not allowed to do with or on the organisation's technology systems (Ajibade 2018). They assist in protecting customers and the organisations against risks of hacking and computer viruses (Weidman & Grossklags 2019). In the case of TM, NUL IT use policy and guidelines influenced the adoption and use of LSP. However, this study discovered the following as evidence:

- The TM IT use policy, rules and regulations were in a form of pamphlets and booklets shared through the staff emails;
- Purchasing and using library systems entails TM librarians' adherence to NUL IT use policy although the participants were not aware that their library rules and regulations on how to use the systems emanated from their university IT use policy, rules and regulations;
- Not all the participants were aware that the sectional pamphlets and booklets that guided their behaviour and daily processes were library policies.

The degree to which a librarian believes that using the LSP may accomplish a task and improve performance is known as perceived usefulness (Tripathi 2017). It is a significant signal given that librarians who are eager to adopt and use LSP feel that doing so will increase their productivity, performance, and efficiency. Regardless of the fact that Sierra was not fully

implemented and TM was phasing it out, perceived usefulness of Sierra influenced its adoption and use at TM, as the cataloguing and circulation librarians believed Sierra enabled them to achieve their target and enhanced their performance. On the other hand, Perceive ease of Sierra LSP influenced the adoption and use at TM. Simple to use, accessible and straightforward, adaptable to engage with, requiring less mental effort, becoming proficient with, and easy to learn how to use are the criteria to predict perceived ease of the technological system (Davis 1989; Tripathi 2017). Moreover, the ubiquitous nature of Web 4.0 technologies, such as Sierra/FOLIO LSP is demonstrated by their availability and accessibility which ought to be accessible at all times at any location, and this ubiquity positively influence TM librarians to adopt and use Sierra/FOLIO. Lastly, citing the ITAUM diagram in chapter two and the findings of this study, IT skills and experience, supervisors' support, IT use policy, rules and guidelines, perceived usefulness, perceived ease of use, ubiquity, and cost of Sierra/FOLIO had a positive influence on the attitudes of TM librarians to adopt and use of Sierra/FOLIO.

7.2.3 Challenges of TM librarians

This section summarises the challenges of TM librarians while using Sierra/FOLIO as the following:

- TM supervisors delayed to share the news why TM was phasing out Sierra. Consequently this resulted into resistance to adopt and use FOLIO by 30% of the librarians. A response from a follow-up question to the chief supervisor indicated that the news were shared with emails to all TM staff although it was sent late at the implementation and training stage;
- Not all the participants were aware that the library manuals and guidelines entailed operational rules, including the use of IT systems;
- In the absence of the librarian who is privileged to lock/unlock students in cases of unpaid/paid overdue fines, students are dismissed or wait until they got assistance;
- Due to financial problems, it was impossible for TM to fully leverage all the functionalities of Sierra as NUL paid for cataloguing, circulation, and OPA functions of Sierra;
- Innovative Interfaces Inc. did not offer training and support for Sierra, leaving it to TM to train staff relying on system manuals;
- FOLIO demonstrated lengthy cataloguing processes. However, the customisation of this LSP was not completed, meaning some of the anomalies are yet to be addressed.

7.2.4 Recommendations on the extent to TM adopted and used LSPs

The third objective is to recommend solutions for successful adoption and use of FOLIO for TM librarians. This section, therefore, presents the recommendations that address the major concerns revealed under each objective. The first objective assesses the extent to which TM librarians had adopted LSP, and the study recommended the following:

- TM librarians used the cataloguing and circulation functions of Sierra from 2016-2023 (7 years). This study recommended that TM librarians should seek funds/grants/donations from local and international organisations, such as UNESCO and EBSCO/UKS or government ministries, instead of relying on the university subventions;
- There is a need for vigilant accountants and regular financial audits at NUL;
- As a national coordinator for LELICO projects, the university librarian should initiate the awareness campaign of the utility of implementing LSPs by hosting workshops for LELICO members. Then TM will be able to share the costs of library systems/resources with member libraries because the training/workshops will make local librarians understand these cloud technologies TM librarians are using;
- The use of email alone is not enough to communicate with staff. TM supervisors should deploy strategic communication where supervisors interact with subordinates and get feedback: WhatsApp groups for staff, announcements made in physical/online meetings, and ensuring that staff have clearly understood the message. By so doing, TM supervisors would be motivating staff to adapt to changes while also strengthening trust and work relationship;
- Whenever change is involved, TM should engage all the stakeholders from the initial stage of planning right to the implementation and training stage to minimise resistance to adopt and use of emergent technologies;
- Although Professional development alone may not influence the adoption of new technologies, it is the basis for understanding the basics and terminologies of emerging technological systems. So, TM should keep up the good work of continued professional development, as some of the librarians were on study leave by the time of this study.

7.2.5 Recommendations on the factors that influenced the adoption of LSPs

The second objective of this study was to ascertain the factors that influenced the adoption and use of LSPs at TM. Based on ITAUM as the conceptual framework for this study, this researcher recommended the following:

- TM should make a follow up on the progress development of the NUL IT use policy and announce the existence of such policies. Thereafter TM should make such documents available on the library website, emails, and WhatsApp group;
- Similarly, TM manuals, rules and guidelines should be accessible to all the staff (e.g. documents containing acquisitions, cataloguing, circulation, digitisation/IR, ERM policy, rules and guidelines);
- TM librarians should enhance migration skills to cut costs of outsourcing such skills, as Innovative Interfaces Inc. did not complete the migration of content from Millennium to Sierra. Now, UKS is doing a great deal in migrating records from Sierra to FOLIO;
- After vendor's webinars/online training, supervisors should enhance their subordinates' understanding in meetings or in-house training with the use of local language to accelerate the adoption of new technologies;
- Before acquiring technological systems, TM should benchmark from other libraries using similar systems to establish the reputation of the vendors supplying such services;
- Technologies are meant to save time of both librarians and patrons. There is a need for TM to train more librarians on how to lock and unlock students' accounts at circulation desk;
- Lastly, ITAUM is a validated model that can include strategic communication and vendor loyalty to evaluate Web 4.0/Web 5.0 technologies.

7.2.6 Recommendations on the skills required by TM

According to the findings, additional skills TM librarians suggested for improving their performance while using LSPs included the following:

- Continuous training on how to use RDA for cataloguing;
- Presentation skills for information literacy, where TM librarians orientate students on how to access content from the LSPs;
- Search skills for reference services in order to access and provide information in time when library users are making telephone calls for assistance;

- Research skills in order to assist researchers with appropriate information;
- Improvement on the migration skills;
- Social media skills for marketing services, reference services, and announcement of library events, as LSPs integrate with social media platform.

7.3 Implications of the study

The results of this study provided insights into a number of subjects that should be taken into account to enhance the delivery of resources and services, and enforce the adoption and use of FOLIO LSP at TM. Noting the strengths and weaknesses of TM, this study provided ideal strategies and recommendations for the successful implementation, adoption and use of FOLIO LSP while also tacking the difficulties encountered during the data collection processes. This study's recommendations, if put into practice, could demonstrate that ITAUM is a perfect for evaluating the uptake and application of LSPs because it is designed to be applied outside of the library setting. This is primarily because the study covered topics related to how resistance to change and continued use of ILSs affect library operations. This is crucial because, while little money and poor communication channels might hinder the implementation and adoption of LSPs, sufficient funding and smart communication can build work relationships and enforce trust. To safeguard the implementation processes against threats, TM must also ensure staff satisfaction and involvement at every stage of the implementation. Enforcing awareness and reasons for migration of systems ought to be a top priority for TM supervisors. As a result, supervisors bear a primary responsibility of making sure that information regarding policies and system change is promptly and broadly available. This information should be displayed on the library website, emails, and social media platforms used by TM staff to make potential users of the new system (LSP) aware of its introduction prior to it actually being implemented.

This study further recommends that TM librarians should continue to acquire IT skills in high numbers in order to successfully adopt and cope with the emergent automation platforms. Increased IT competencies would also help TM librarians to overcome the practice of out-sourcing, and be relieved from the diminishing budget pressures, as an abundance of skills saves the budget. TM Library, as one of the LELICO members, should strengthen the initiative of acquiring library resources/systems through the consortium to save its budget. As confirmed by the literature, academic libraries can avoid hiring extra IT specialists by using a cloud-based consortium strategy, escaping the costs of purchasing hardware and setting up infrastructure, and encourage teamwork in a shared setting while also avoiding duplication of resource

subscription (Shaw & De Sarkar 2019). TM should also hold regular in-house workshops to train their subordinates in digitisation and e-resource acquisition, as well as the use of RDA for cataloguers to enhance access to all library materials regardless of the format. That is, RDA will help with the common cataloguing standard for TM cataloguers to access and catalogue all the resources that would be integrated with FOLIO (e.g. print resources, e-resources, digitised archival records and grey literature). Therefore, there is a need for TM library to train its staff on this concept, and equip them with the skills to use RDA. There is a need for the sharing of unlocking skills in case of the absence of the librarian who is authorised to unlock students' accounts after they have cleared their overdue debts. Dismissing or letting the student wait for the unlocking assistance tarnishes the reputation of TM library and demoralises these students, as well as the librarians at the serving point. Library systems are enhanced to save the time for both librarians and library users. TM needs to improve its management in this regard. This also means that there is a need for TM librarians to receive training in customer care and administration of the library staff, as their core business is to support learning, teaching and research. TM supervisors can even guide their staff to helpful online webinars. These frequent interactions can improve workplace relationships between supervisors/senior librarians and their subordinates, while also increasing satisfaction, happiness, and individual performance.

7.4 Suggestions for further research

This study explored the factors that influenced the adoption and use of TM Library platforms from the perspective of librarians. Since it was not possible for this researcher to investigate everything with regard to TM library, this study recommends a further study on:

- The adoption of FOLIO LSP from the perspective of NUL students as library users, this study should include students from branch libraries.
- A similar study could be carried out from the lens of Lesotho consortium libraries as awareness and benefits of library services platforms.

7.5 Final conclusion

The study aimed at understanding the factors that influenced the adoption and use of LSPs since 2016 to 2023 by TM librarians, using the technology acceptance model developed to predict the adoption of virtual and ubiquitous systems offered on a SaaS mode. As a qualitative case study, where the case is TM Library of NUL, this study followed an interpretive paradigm. The total population of the study comprised 24 librarians from which 13 signed the consent,

and this study used purposive sampling to pick potential participants. The population sample used in this study adhered to the following criteria: full time librarians at the main campus of NUL, utilisation of Sierra/FOLIO LSP for daily operations, availability and willingness to participate in this study. The data were gathered through document analysis, and interviews that were informed by the interview guide. This study carried out a self-conducted interviews with librarians. The interviewees happened to be cataloguing and circulation librarians of TM because the university paid for the cataloguing, circulation, and OPAC modules of Sierra LSP, and only cataloguing librarians had started using FOLIO LSP. The study used a thematic data analysis with a number of tables to make the findings easy to understand.

ITAUM, as a conceptual framework, fully supported this study because the following constructs: IT skills and experience, IT policy, perceived ease of use, perceived usefulness, and supervisors' support influenced the adoption and use of Sierra LSP at TM. Perceived cost, on the other hand, influenced the implementation of FOLIO as an open source LSP. This study concluded that TM librarians would adopt and continue using FOLIO LSP with the influence of their IT skills acquired from continuous in-house training, experience of using ITS, Millennium, and Sierra LSP, strategic communication, supervisors' support, continued FOLIO support from EBSCO/UKS, and educational qualification. Further conclusions indicated that the systems that TM implemented from 2016 to 2023 included DSpace for archives, CDSISIS for managing grey literature, ITS library module, which lacked upgrading from its vendor, Millennium ILS, which was designed for the management of print collection, and Sierra LSP. The findings further showed TM was no longer using AACR2 and implemented RDA cataloguing upon the arrival of FOLIO. RDA, created for the digital environment, was a cataloguing and classification standard that applied to all forms of materials and content housed in libraries and other relating cultural institutions, such as galleries and repositories (Spry et al. 2023).

However, the study findings concluded that TM had some challenges that might slow the adoption of the emergent technology systems and may even result in resistance to change. TM was in the migration stage, where it was replacing Sierra LSP with FOLIO LSP due to a lack of support from Innovative Interfaces Inc., an increased number of libraries that have stopped using Sierra, lack of strategic communication, and lack of financial support, as TM had managed to pay for only the cataloguing, acquisition, and OPAC functions of Sierra. Moreover Sierra was not integrated with NUL ITS, acquisitions librarians had to use NUL ITS, which

interoperated with NUL financial system to order library materials, making Sierra more obsolete.

To address these challenges, this study recommended, among others, that institutional policy and guidelines on IT use be shared on easily accessible platforms like the library Web site, emails, and staff Whatsap group, frequent financial audits, strategic communication, adequate library budget, professional development and growth, e-resources management skills, research skills, effective supervisors' support, search skills and migration skills. The researcher further recommended that TM should share costs of systems and other library resources with the consortium libraries. LELICO should also initiate the awareness campaign of the importance of implementing Web 4.0/Web 5.0 technologies in libraries. These technological advancements will allow for timely response to patrons' needs, and reduce the need for physical library visits for remote services.

To be specific, this study made the following conclusion:

- TM Library was replacing Sierra with open source FOLIO because Sierra as a proprietary SaaS was expensive and lacked vendor's support;
- Open source FOLIO with discovery and interoperability functions would integrate with NUL system and enhance acquisition and sharing of resources;
- The cost of FOLIO as an open source LSP offered on a SaaS mode had a positive influence on the implementation, adoption and use at TM. That is, cost has positively motivated the attitudes of TM librarians to adopt FOLIO;
- IT skills and experience of obtained from continuous workplace training influenced TM librarians to adopt and use Sierra;
- TM supervisors, guided by sectional manuals, rules, and guidelines, assisted their subordinates to adopt and use Sierra/FOLIO, and monitored staff performance;
- The loyalty and support TM librarians got from EBSCO/UKS.

The results of this study contribute to the understanding of new research on the adoption and use of library services platforms in Lesotho, and the attainment of the United Nation's SDGs in Lesotho and SADC countries.

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APPENDICES

Appendix I: researcher's request letter for data collection

Box 10238

Maseru

Lesotho

Cell: [redacted]

Email: [redacted]

The Registrar

National University of Lesotho

P.O. Roma 180

Maseru

Lesotho

Dear Sir/Madam

Re: Request for Permission to Conduct a Study at The National University of Lesotho Library – Thomas Mofolo

I am a student who is pursuing her Master's Degree in Information Science with the University of South Africa (UNISA). This letter, therefore, serves as a humble request to your office to grant me permission to collect data through telephone interviews to some of Thomas Mofolo librarians. My study title is: **Perceptions of Thomas Mofolo Librarians Towards the Adoption of Sierra Library Services Platform at the National University of Lesotho.**

I hope my request will meet with your favourable consideration.

[redacted]

Sylvia Mamonaheng Tsukulu – LCE Library

Cc: NUL Librarian

Attachment: Proof that the researcher is a UNISA student

Appendix II: NUL Permission Letter for Data Collection

Appendix II: Permission from the University of Lesotho

THE NATIONAL UNIVERSITY OF LESOTHO

Telephone: +266 52213907
+266 22340264
+266 22340601
Fax: +266 22340000
Website: http//www.nul.ls

P O Roma 180
Lesotho
Africa

OFFICE OF THE REGISTRAR

24th August 2020

REF: REG/ADM-1.37

Ms Sylvia Mamonaheng Tsukulu
Lesotho College of Education –Library
P.O. Box 10238
Maseru
Lesotho

Dear Madam

Re: Request to Conduct a Study at the National University of Lesotho

The National University of Lesotho (NUL) is in receipt of your application to conduct a study at this institution. "**Perceptions of Thomas Mofolo Librarians Towards the Adoption of Sierra Library Services Platform at the National University of Lesotho".**

After careful consideration of all relevant facts, the University has agreed to allow you to continue with your study as requested. It is hoped that the research outcome will be beneficial to both the institution of Higher learning and the country at large.

By copy of this letter the University Librarian is requested to assist you to carry out your assignment.

Yours sincerely

[redacted]

L. MAQALIKA-LEROTHOLI
Registrar

Cc: University Librarian

Appendix III: Ethics Certificate

UNISA university of south africa

COLLEGE OF HUMAN SCIENCES RESEARCH ETHICS REVIEW COMMITTEE

21 May 2021

Dear Sylvia Mamonaheng Tsukulu

Decision:
Ethics Approval from 21 May 2021 to 21 May 2024

NHREC Registration # :
Rec-240816-052
CREC Reference # :
64013367_CREC_CHS_2021

Researcher(s): **Name: Sylvia Mamonaheng Tsukulu**
Contact details: 64013367@mylife.unisa.ac.za
Supervisor(s): **Name: Dr MCAM Sehlapelo**
Contact details: sehlamca@unisa.ac.za

Title: ***Perceptions of Thomas Mofolo Librarians towards the Adoption of Sierra Library Services Platform at the National University of Lesotho.***

Degree Purpose: Masters

Thank you for the application for research ethics clearance by the Unisa College of Human Science Ethics Committee. Ethics approval is granted for three year.

The ***medium risk application was reviewed by*** College of Human Sciences Research Ethics Committee, in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the College Ethics Review Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the

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Appendix IV: Participant information sheet

Date: 11 February 2023

Title: *Assessing the Implementation of Sierra Library Services Platform at the National University of Lesotho*

Dear prospective participants,

My name is Sylvia Mamonaheng Tsukulu. I am doing research with Dr. C. Martin Sehlapelo, who is a senior lecturer in the Department of Information Science towards Master of Art in Information Science at the University of South Africa. We are inviting you to participate in a study titled: **Assessing the Implementation of Sierra Library Services Platform at the National University of Lesotho**

PURPOSE OF THE STUDY

I am conducting this research to analyse the perceptions of Thomas Mofolo librarians towards their newly-implemented Sierra Platform for the purpose of suggesting a strategy for acceptance and continued use of Sierra.

WHY AM I BEING INVITED TO PARTICIPATE?

This is merely a complementary study that assumes you are frequently using Sierra and involved in decision making on the acquisitions of Sierra Platform. Among local libraries, your library is taking the lead in keeping up with technology trends.

NATURE OF PARTICIPATION IN THIS STUDY

The semi-structured interviews are conducted over the telephone with the duration of thirty minutes to one hour per respondent for a period of two weeks. Questions are based on the factors that may influence successful adoption of Sierra at Thomas Mofolo, focusing mainly on: IT skills and experience of participating librarians, perceived usefulness of Sierra, perceived ease of use of Sierra, perceived ubiquity of Sierra, perceived risks and cost of Sierra.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participating in this study is voluntary, and you are under no obligation to consent participation. You are free to withdraw at any time. In case you decide to participate, you will be given this information sheet to keep, and asked to sign a written consent form. However, it may not be possible for you to withdraw after the interview.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY

The results of this study will benefit the University, as thy will help librarians to improve their IT skills, to provide quality delivery of services and enhanced resource management. This study will also suggest further research on virtual automation in the context of Lesotho libraries.

ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

There are no possible risk and harm or consequences of participating in this research project.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

Rest assured that your personal identity will not be shared or recorded anywhere in the final write-up, and nobody will connect you to the answers you provided. Your answers will bare a code number or a pseudonym so that you will be cited as such in any publications.

HOW WILL THE RESEARCHER (S) PROTECT THE SECURITY OF DATA?

Recorded interviews will be transcribed into a written record. Then the physical records will be scanned and saved a password protected computer/laptop. After scanning, hard copies will be destroyed with a shredding machine. Future use of saved files will be subject to further Research Ethics Review and approval. Electronic files will be permanently deleted with an appropriate software programme where necessary.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

There will be no payment or reward offered, either financial or otherwise. However a copy of research findings will be submitted to the institution.

HAS THE STUDY RECEIVED ETHICS APPROVAL

This study has received approval from Research Ethics Review Committee of the College of Human Sciences, UNISA. A copy of approval letter can be obtained from the researcher if you so wish.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH? RESEARCH?

If you would like to be informed of the final research findings, please contact Sylvia Mamonaheng Tsukulu on [redacted]. The findings are accessible for a period of five years. Should you require any further information or want to contact the researcher about any aspect of this study, please contact Sylvia Mamonaheng Tsukulu on [redacted] Should you have concerns about the way in which the research has been conducted, you may contact Dr. MCAM Sehlapelo at sehlamca@unisa.ac.za

Thank you for taking time to read this information sheet and for participating in this study.

[redacted]

Sylvia Mamonaheng Tsukulu

Appendix V: Consent form

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CONSENT FORM

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the focus group semi-structured interview.

I have received a signed copy of the informed consent agreement.

Participant Name & Surname..... (please print)

Participant Signature.....Date.....

Researcher's Name & Surname: Sylvia M. Tsukudu (please print)

Researcher's signature..... [redacted] .....Date.....

University of South Africa

Appendix VI: Interview guide

Objectives	Questions
A. Demographic data of participants	
How many years have you been in this position?	
Qualifications	Please mention your highest qualification.

B. Awareness	For your line of work, what is the name of the library management system that you are using? When was the TM library management system implemented? Why did you change from the previously used library system to the current system?
C. Key questions:	
The factors that influence the adoption and continued use of TM library system	
1. IT skills and experience	Please mention any IT/ICT skills that you possess
	Please suggest additional skills that can improve your performance while using your library system?
	Do you consider the adoption and implementation of your library system successful?
2. NUL IT use policy, rules and guidelines	To what extend do the NUL technology policy and guidelines support the adoption of the newly implemented systems at TM library?
	How does your supervisors motivate you to adopt and continue using the newly implemented library systems?
3. Perceived usefulness	What are the perceived benefits of your library system at your respective line of work?
4. Perceived ease of use	In general, do you consider your library system easy to use?
5. Perceived ubiquity	In your role of work, what are the system's functions that you use?
	In your role of work, what are the additional functions of the systems that you use?
	What are the general challenges you experience while using your library system?

Attitude	What motivated TM librarians' attitude to actually use the LSPs?