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A Comparative Analysis of Agile and Traditional Project Management Methodologies and their Impact on Information System Development Projects: A Case Study of Nigerian Banking System

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Abstract: ***In recent years, the rapidly changing business environment has necessitated the adoption of various project management methodologies, such as agile and traditional project management methods to overcome challenges arising from complexity and uncertainties in projects. This study aims to conduct a comparative analysis of agile and traditional methodologies and their impact on information system development projects, within the Nigerian banking industry. A review of relevant literature revealed that both methodologies have their strengths and weaknesses, and the success of information systems development projects depends on factors including project management skills, communication, user involvement and team collaboration, rather than the project management methodology chosen. Furthermore, it was observed that factors such as organizational structure and culture, processes, and people hinder adoption and implementation of project management methodologies. To address research objectives and questions, a case study design and semi-structured interview method will be employed to gather data from fifteen purposively selected participants including project managers, information system developers, and information technology consultants from five Nigerian banks. In addition, this study outlines a plan of investigation to progress this proposal to a dissertation if necessary, detailing steps that will be utilized to gather, analyse, and interpret data, as well as draw conclusions.***

Keywords: project management methodologies, agile method, traditional method, APM, TPM, ISD, comparative analysis

1. Introduction

1.1 Background

Project management has become a crucial factor for achieving successful project completion in many industries. Over the past few years, the dynamic changes of the business environment have led to the introduction of various project management methodologies to manage challenges arising from complexity and uncertainties in projects. In essence, project management methodology can be referred to as series of procedures, techniques, tools, guidelines, principles, and best practices that facilitates a consistent, structured, and systematic process of managing projects to ensure timely completion within allocated budget (Joslin and Muller 2015). In a bid to increase the chances of meeting project objectives, many project communities and organizations utilize project management methodologies such as traditional and agile to develop, manage, and implement information system development projects to achieve optimal performance and efficiency (Wells 2012). Akhmetshin et al. (2019) described traditional project management methodology as a technique that applies skills and processes in a sequential manner and involves completion of five distinct phases during project implementation, beginning with initiation, planning, execution, monitoring, and closure. Accordingly, they highlighted some common traditional methods which include Critical Chain Project Management, Waterfall, Projects In Controlled Environment (PRINCE2), PMI-PMBOK and Six and Critical Path Method (CPM)On the other hand, Agile methodology involves teamwork, continuous improvement, and delivery of projects in parts through time-bound iterations. It comprises Feature-Driven Development (FDD), Scrum, Kanban, Lean, Dynamic Systems Development Method (DSDM), Extreme Programming (XP) and Crystal (Alaidaros and Omar 2017).

About 30 years ago, banking services in Nigeria were very primitive as transactions were only carried out physically in the branch and over the counter compared to recent times when advancement in technological innovation has transformed business operations and transactions can be completed anywhere. Suffice to conclude that technology has provided an opportunity for the Nigerian banking sector to improve their performance, stay ahead of competition and deliver value to their customers through implementation of Information system development projects to facilitate transactions, account management and customer service (Ohiani 2020). Moreover, information system development projects can be regarded as creation and implementation of computer-based systems by organizations to improve operational efficiency, customer experience, and regulatory compliance. Despite significant improvements in services like cash withdrawal and cash deposit owing to adoption of information system development projects such as internet and mobile banking services in the Banking industry, the failure rate of information system development projects remains high and quite a challenge to tackle (Azolibe, Okonkwo and Obi-Nwosu 2023).

Consequently, Baghizadeh, Cecez-Kecmanovic and Schlagwein (2020) attributed the high failure rate to variables including inadequate alignment between operational processes, and configuration of information system development projects, not meeting user expectation and

above all, failure to match project characteristics with a suitable project management methodology.

Notwithstanding that various project management approaches employed in execution of information system development projects play an invaluable role in ensuring successful project outcome, the lack of a consensus amongst researchers on what constitutes project success make it challenging to decide if a chosen project management approach is a major determinant for achieving project success (Ciric et al. 2021). Again, project success is relative in information system development projects because definition of project success seems to be subjective and based on perspectives of different stakeholders. This is why a project deemed successful by the project committee can be considered a failure by project sponsor/end users if the project does not deliver the anticipated benefits or exceeded timeline and budget without sufficiently meeting all specifications (Yohannes and Mauritsius 2022).

1.2 Problem Statement

To remain competitive in the dynamic business environment and meet the changing customer needs, the Nigerian banking industry has incorporated information systems solutions into its operational activities. The goal of the incorporation is to ensure efficient service delivery and customer satisfaction, while increasing organizational profitability. However, in most cases the Information system solutions fail to meet the expectations of organizations and customers sometimes leading to financial losses, disputes and high customer churn rate. (Ibitomi 2021). Baghizadeh, Cecez-Kecmanovic and Schlagwein (2020) concluded that the information system solutions fail because of a misfit between the project characteristics and project management method utilized for implementation. Similarly, (Joslin and Muller 2016; Krishna and Venkatajah 2017; Ciric Lalic et al. 2022) argued that project management methodologies have a significant impact on the outcome of a project. This aligns with the findings of Ciric et al. (2021) that the project management approach selected for a project determines the outcome while highlighting that there is paucity of research on the efficacy of project management approaches and their relevance to project success. Also, Wells (2012) identified that literature is yet to agree on which of the project management methodologies is more efficient and ensures successful delivery of information system development projects. Therefore, this research is set on aforementioned submissions and identified literature gap to compare agile and traditional project management methodologies and how they impact project success in the context of Information system development projects.

1.3 Brief Scope of Research

This study will focus on comparison of traditional and agile project management methodologies such as on Waterfall, Prince2 and Scrum, Extreme Programming Kanban; and how they influence information system development projects in Nigerian Banking sector. So, this research will explore features of both methodologies, its adoption and implementation, the success factors and how each methodology is linked to project outcomes in information system development projects.

1.4 Research Aim

The aim of this study is to compare agile and traditional project management methodologies and how they influence successful development of information system projects.

1.5 Research Objectives

1) To examine key features of agile and traditional project management methodologies
2) Identify the critical success factors of each methodology.
3) To explore factors that may influence adoption and implementation of agile and traditional methods in Information system development projects.
4) To investigate the impact of agile and traditional project management methodologies in implementation of information systems development projects

2. Literature Review

About forty-six journal articles were retrieved from credible databases such as Taylor and Francis, Emerald, Sage, Science Direct, and Elsevier; to obtain data that will facilitate comprehensive analysis of agile and traditional project management methodologies. Table 2.1 presents articles reviewed for this study.

Table 2.1: List of Reviewed Articles

S/N	Author	Project Management Method discussed	Conclusion	Research approach Used
1	Ciric et al, 2021	Agile and traditional	Both methodologies complement each other so should be used together to increase chances of success	quantitative
2	Burga et al., 2022	Agile	Agile has high considering it accepts change request anytime	qualitative
3	Patanakul and RufoMcCarron, 2018	Agile and Traditional	Without proper training and integration of documentation in agile process, agile won't succeed.	qualitative
4	Tam et al.2020	Agile	The capacity of the project team determines the outcome not necessarily methodology used	Mixed
5	Wells 2012	Agile and Traditional	The perception of the project manager about a method determines the performance of the project	qualitative
6	Noteboom	Agile vs Traditional	The success of a project is contingent on proper definition of projects and adequate estimation of resources not just the PM method used	qualitative
7	Sharma and Hasteer 2016	Agile and traditional	Agile project management has witnessed a considerable growth in popularity due to its high success rate in comparison to traditional	qualitative

8	Al-Zewairi et al. 2017	Agile	Agile methodologies alleviate the constraints and drawbacks of traditional project management	Survey of surveys
9	J. LópezMartínez et al. 2016	Agile	Agile will be more effective if documentation is adapted into the requirement and design stage.	qualitative
10	Kiv et al., 2018	Agile	Agile methods should be customized based on agile values and principles to ensure successful delivery of projects	qualitative
11	Serrador and Pinto, 2015	Agile	Agile methodology increases the chances of project success regardless of project complexity or competency of project team	qualitative
12	Spundak 2014	Agile and traditional	Both methodologies are important thus should be combined and adapted to suit project characteristics.	Mixed
13	Mishra et al. 2021	Agile	Using agile approaches to ensure the success of a project is primarily dependant on the backing of top management.	quantitative
14	Thesing, Feldmann and Burchardt, 2021	Agile and traditional	Traditional methods aid in proper documentation, planning, and resource allocation, whereas agile aids in the rapid identification of changes in needs	qualitative
15	Rasnacis and Berzisa 2017	Agile	The adoption and implementation process heavily influences the success of an agile project.	N/A
16	Ciric Lalic et al. 2022	Agile and Traditional	agile managed projects had a greater positive impact compared to other methods	quantitative
17	Bergmann and Karwowski 2019	Agile vs traditional	Agile is better than traditional method because it helps to overcome the limitations of traditional method	Systematic literature review
18	Agbejule and Lehtineva 2022	Agile and Traditional	The success of a project is primarily determined by the quality of the project team, rather than the project management methodology employed.	survey
19	Joslin and Müller 2016	Agile vs traditional	Project management methodologies have a direct impact on project success	qualitative
20	Hassani-Alaoui, Cameron and Giannelia 2020	Agile	Improper adaptation of agile methods and negligence of guidelines significantly impacts project success	qualitative
21	Ahimbisibwe, Cavana and Daellenbach 2015	Agile and traditional	Proper evaluation of organisational, team, and customer aspects is critical for the success of any methodology chosen.	Systematic literature review
22	Wafa et al. 2022	Agile	Agile methods are critical to the successful execution of information system initiatives.	quantitative
23	Kurup and Sidhardhan 2015	Agile	The success or failure of the agile technique is reliant on the characteristics of a project, and the experience of the team involved.	Systematic literature review
24	Pace 2019	Agile and traditional	The choice of project management methodology does not necessarily guarantee project success	quantitative
25	Bormane et al. 2016	Agile vs traditional	Achieving project success does not solely depend on project management methodologies but on the quality of work completed	qualitative
26	Van Casteren, 2017	Agile vs traditional	Both methodologies are valuable and should be carefully chosen based on the specific project characteristics to ensure a successful outcome	qualitative
27	Chari and Agrawal 2018	Traditional	The frequency of change requests is an important determinant of project success	qualitative
28	Chauhan, Rana and Sharma 2017	Agile vs traditional	Agile is more effective than waterfall	Systematic literature review
29	Hummel 2014	Agile	Agile is more effective in information system development projects	Systematic literature review
30	Tanner and von Willingh 2014	Agile and traditional	The success of a project is contingent upon various factors and the effective implementation of appropriate project management methodologies	qualitative
31	Fitriani, Rahayu and Sensuse 2016	Agile	Agile managed projects perform better if issues concerning team, documentation and requirement prioritization is properly handled	Systematic literature review
32	Ismail and Arviansyah 2021	Agile	Lack of experience and resistance to change are significant barriers to the success of projects managed using the agile approach	Systematic literature review
33	Ekasari, Raharjo and Prasetyo 2021	Agile	Strict adherence to agile practices ensures project success	Systematic literature review
34	Malhotra and Chug 2016	Agile	Agile methodologies are considered more effective as they emphasize rapid development and cost reduction without compromising quality.	N/A
35	Kasianenko 2018	Agile and traditional	Both can be used simultaneously depending on the phase of the project	N/A
36	Spalek 2016	Agile and traditional	Traditional methods are less effective due to limited room for adjusting the project scope, which may have been erroneously defined.	qualitative

37	Ahimbisibwe, Daellenbach and Cavana 2017	Agile and traditional	Traditional methods should be used when project requirements are known and defined, while agile methods should be utilized under conditions of uncertainty.	Literature review
38	Conforto et al. 2014	Agile	Uncommitted project teams and organisational culture reduces the likelihood of project success in agile-managed projects.	Systematic literature
39	Rastogi 2015	Agile and traditional	Each method has its own drawbacks." As a result, combining both strategies can assist compensate for the shortcomings of each methodology.	qualitative
40	Joslin and Muller 2015	Agile and traditional	The capacity to customise a project management method to meet specific project objectives and adopting a comprehensive method guarantees project success	qualitative
41	Moloto, Harmse and Zuva 2020	Agile	Agile positively impacts the project success	systematic Literature review
42	Matook and Vidgen 2014	Agile and traditional	Variables including people, procedures, and organisational aspects impact the efficiency of a project management method.	qualitative
43	Akhmetshin et al. 2019	Agile and traditional	Project management methods impacts project success	quantitative
44	Dybå, Dingsøyr and Moe 2014	Agile and traditional	Finding balance between upfront planning and learning will facilitate project success	N/A
45	Anand and Dikaran 2016	Agile	Proper implementation of agile method increases the chance of success	Literature review
46	Munteanu and Dragos 2021	Agile	Agile method increases efficiency and transparency which enhances project success	Literature review

2.1 Overview of Project Management Methodologies

Project management methodology can be defined as series of procedures, techniques, principles, and best practices that facilitate a consistent, and systematic process of managing a project to ensure timely completion within allocated budget (Spundak 2014; Joslin and Muller 2015). Jovanovic and Beric (2018), analysed existing project management methodologies and suggested that available methods are of two categories; the first category is traditional methods consisting of Serbian Project Management Association (YUPMA), Project Management Institute (PMI), Project in Controlled Environment (Prince2), Association of Project Management (APM), International Project Management Association (IPMA) method; and a second category which is agile methods. In contrast, Akhmetshin et al. (2019), emphasized that project management methodologies comprise of Critical Path Method (CPM), Adaptive Project Framework (APF), Critical Chain Project Management, Kanban, Scrum, Prince2, PMI-PMBOK, Waterfall, Six Sigma and agile. Nonetheless, Spundak (2014), posits that there are two approaches namely traditional and agile methods for managing projects. Regardless of the project management method selected for a project, the context or project characteristics, the goal of project management method remains the same, to provide a systematic approach to enable project team to efficiently plan and manage projects to ensure successful delivery and customer satisfaction. (Chauhan, Rana and Sharma 2017). In this study, discussion will be concentrated on agile and traditional project management methods because they are the most prevalent and extensively researched methods.

2.2 Agile Project Management Method (APM)

The term agile refers to the ability to move rapidly and effortlessly. Agile Project management can be regarded as an iterative approach which subdivides project task into brief phases, continuously evaluates completed activities and adapts project plan as necessary to facilitate incremental delivery of project outcomes (Wafa et al 2022). In addition, Ekasari, Raharjo and Prasetyo (2021) referred to agile method as a mindset, series of principles, techniques, guidelines, and values that helps to manage and deliver projects.

Agile project management has its roots in software development industry, as it emerged from *Agile Manifesto* which was created by 17 leaders in software development in 2001. This manifesto was a response to the crisis experienced in software industry in early 1990s. Prior to introduction of agile methods, it could take up to three years between identification of customer need to product delivery. This long process resulted to many failed projects because the software products are either outdated or customer needs have changed by the time the project is delivered (Beck 2001). According to the Agile Manifesto there are four values and twelve principles which emphasizes collaboration, working software, interaction between people rather than procedures and tools, and responding to change instead of conforming to specified plan, that are crucial for the successful adoption and application of Agile methods in any project.

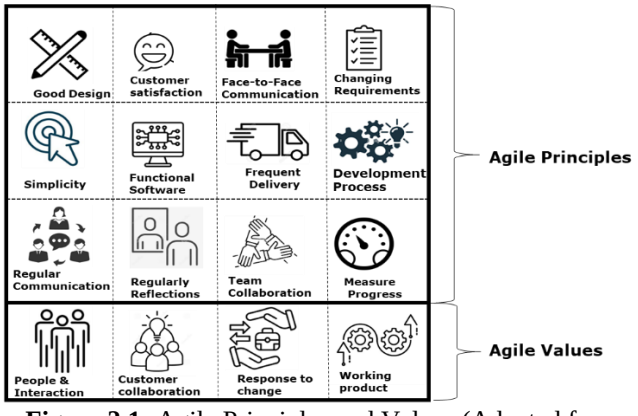


Figure 2.1: Agile Principles and Values (Adapted from Agile Manifesto)

2.2.1 Characteristics of Agile Project Management Method

Based on the review of previous studies conducted on agile project management method, six distinct features were identified as key characteristics of agile methods. To begin

with, APM employs an iterative workflow and incremental project delivery which entails splitting the project into smaller and manageable work packages that can be developed and evaluated in short development cycles known as iterations. This feature enables real-time feedback from users and continuous improvement of processes by the project team thereby ensuring delivery of quality products that satisfy needs of customers (Serrador and Pinto 2015; Al-Zewairi et al. 2017; Tam et al 2020; Thesing, Feldmann and Burchardt 2021).

Furthermore, agile methods adopt an adaptive planning approach which involves development and adjustment of plans as the project progresses. This attribute allows for prompt response to new information and changing circumstances and refinement of the project plan to reflect changes (Ekasari, Raharjo and Prasetyo 2021; Agbejule and Lehtineva 2022). Then, acknowledging that change is inevitable and there maybe changes in requirements during project execution, APM welcomes change. This enables incorporation of change request at any time irrespective of the stage of the development process (Kasianenko 2018; Ismail and Arviansyah 2021)

Additionally, APM encourage continuous delivery of a working and valuable product to customers in a quick and efficient manner. This means that a functional software is delivered on a regular basis, preferably every few weeks or months. This feature employs frequent tests to ensure that developed software is always up to date and satisfying customer needs (Agbejule and Lehtineva 2022).

Given the paramount importance of the quality of relationship between project team members to project success, APM emphasizes collaboration within the project team, as well as between the team and the customer. This involves regular face-to-face communication and shared ownership of a project, ensuring that team members have a common understanding of what needs to be done (Van Casteren 2017; Bergmann and Karwowski 2019)

Equally important is the flexibility of APM, which enables the project teams to respond to challenges arising from innovation, product adaptation or new requirements in real-time, prompt and efficient manner (Rasnacis and Berzisa 2017)

2.2.2 Types of Agile Project Management Method

Alaidaros and Omar (2017), observed that the term practice, framework, and method are used interchangeably to represent approaches under agile project management methodology. Furthermore, Burga et al. (2022) identified several agile methods including, Adaptive Software Development (ASD), Scrum, Kanban, Extreme Programming (XP), Crystal, Lean, Dynamic Systems Development Method (DSDM), Test Driven Development (TDD), Feature-Driven Development (FDD) and Scrumban. Kiv et al. (2018) highlighted that 70% of organizations use Scrum and XP methods in information systems development projects while the use of Kanban has significantly increased from 31% to 39%.

According to Al-Zewairi et al. (2017), Scrum was introduced by Sutherland and Schwaber in 1995 as a framework for developing complex systems and products. It consists of increments within time-boxed iterations known as sprints that last for 2 to 4 weeks as well as a proficient self-organized team in which anybody can undertake any task. Sharma and Hasteer (2016), opined that Scrum team is usually made up of 6-10 people and comprise of three roles namely, scrum master which oversees the project team, the product owner that develops the product plan, and generates the product backlog and development team that designs, builds, and test product backlog items. Also, Patanakul and Rufo-McCarron (2018) added that Scrum involves four stages beginning with creation of product backlog; then a sprint cycle made up of sprint planning, sprint backlog and daily fifteen minutes meeting; followed by Sprint review (meeting between scrum team and stakeholders to review products) and lastly sprint retrospective (meeting between scrum team to review processes).

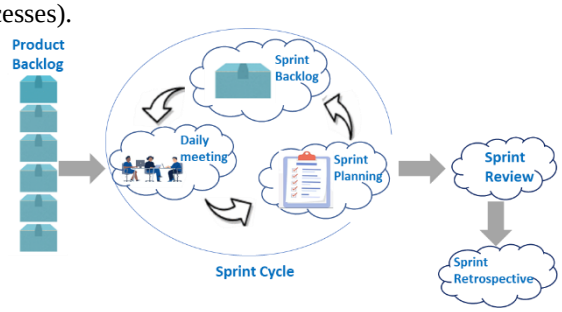


Figure 2.2: Scrum Framework (Adapted from Al-Zewairi et al. 2017)

Anand and Dinakaran (2016), posited that another advancement of APM is Extreme Programming (XP), which is a framework primarily centered on improving quality of software and responsiveness to change request. Then Munteanu and Dragos (2021), surmised that XP follows a coding guideline, conducts an extensive code review, has a simple design structure, and emphasizes respect, communication, consistent feedback, and simplicity which distinguishes it from other agile methods. Notably, Alaidaros and Omar (2017) observed that unlike other agile approaches, XP makes room for changes to be implemented even after an iteration has been launched. This feature, coupled with its emphasis on values associated with collaboration makes XP the preferred choice for many financial organizations.

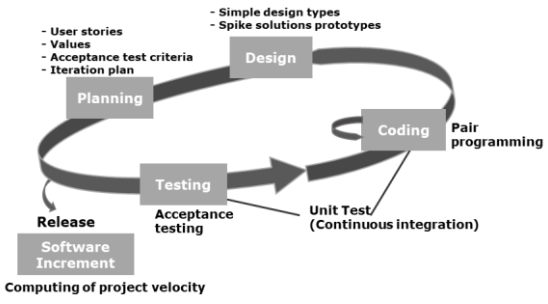


Figure 2.3: Extreme Programming Framework (Adapted from Anand and Dikaran 2016 pp 148)

Fagarasan et al. (2021), proposed that Kanban is a type of APM method that concentrates on evolutionary change and constant improvement using the Just-in-time delivery approach. Accordingly, Burga et al. (2022) summarized that it is a signboard that aids visualization of ongoing activities and prioritization of tasks; while Patanakul and Rufo-McCarron (2018) concluded that Kanban promotes

transparency, limits work in progress, pulls in work when necessary and is suitable for projects where task priority changes frequently.

2.3 Traditional Project Management Method (TPM)

Traditional project management method is an approach that applies skills, techniques, and standards in a linear sequential manner during project execution. It plans, organizes, and establishes control measures of a project from start to finish before the project begins, as well as breaking down project activities into phases building on completion of a previous phase (Noteboom et al 2021).

Accordingly, Bergmann and Karwowski (2019) noted that there are five phases of Traditional project management starting with initiation, planning, execution, monitoring and ending with a close out phase which occurs sequentially such that a phase only begins when the preceding phase has been completed. During the project initiation phase, the project is conceived and defined, project team members determined, scope is established, and a project charter is developed (Bormane et al. 2016). The planning and execution phase involves development of the project plan which details the project scope, schedule and budget, requirement collection, creation of Work breakdown structure, and implementation of tasks (Kasianenko 2018). Closely behind execution is the monitoring phase, where the progress of the project is tracked to identify deviations from the original plan and implement control measures to steer the project back on track. Further to this, is the close out phase that marks the end of a project which focuses on testing and handing over of the project deliverables and documentation of lessons learned (Pace 2019; Bergmann and Karwowski 2019).

2.3.1 Characteristics of Traditional Project Management Method

Several studies on traditional project management methods indicated planning, control, top-down management, linear process, documentation, communication, and adherence to set procedures as the key characteristics of TPM (Ahimbisibwe, Cavana and Daellenbach 2015; Van Casteren 2017; Ciric Lalic et al. 2022;)

Ciric Lalic et al. (2022) opined that TPM emphasizes upfront planning based on the idea that it is crucial to have a clear understanding of the purpose of a project and its specifications before beginning the project. In terms of control and documentation, TPM is set on the mindset that tracking the progress of a project, documenting processes, reviewing results and plans aids in adjustment where and when necessary (Van Casteren 2017). Furthermore, Spalek (2016) surmised that TPM follows a top-down management approach where the project manager oversees the project team and makes all key decisions while, Ahimbisibwe, Cavana and Daellenbach (2015) suggested that keeping an open channel of communication between project team and stakeholders is vital to the outcome of a project, as well as following set guidelines and procedure.

2.3.2 Types of Traditional Project Management Methods

TPM methods identified in previous studies are, spiral, iterative, Critical Chain Project Management, Projects In Controlled Environment (PRINCE2), Waterfall, PMI-PMBOK, Critical Path Method (CPM), and Six Sigma (Akhmetshin et al. 2019; Munteanu and Dragos 2021). However, Dybå, Dingsøyr and Moe (2014) noted that waterfall and Prince2 methods can be used as stand-alone in information system development projects unlike critical chain project management and spiral method which needs to be combined with another approach.

Krishna and Venkatajah (2017) surmised that the waterfall method follows a logical sequence and involves a detailed project schedule represented graphically using a Gantt chart to highlight project task, allocation of resources, task owners and milestones. They emphasized that waterfall defines project requirements at the beginning of project, delivers full functional product at the end of project, negotiates contract before execution starts and holds periodic meetings for progress report and review.

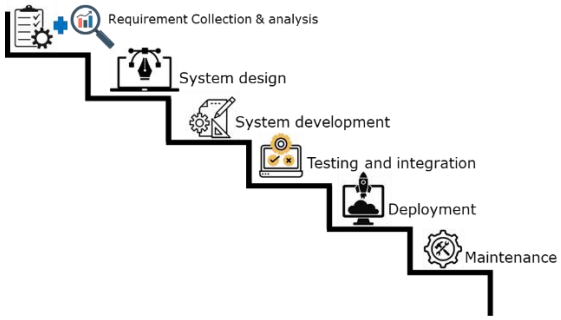


Figure 2.4: Waterfall Framework (Adapted from Munteanu and Dragos 2021)

According to Akhmetshin et al. (2019), Prince2 was developed by the UK government based on seven principles (regular business justification, learning from experience, definition of roles and duties, management by stages, management by exception, product focus, customizing to environment) to ensure unity of best practices. It is a process-based approach centered on a comprehensive and systematic management of projects through creation of clearly defined and standardized environment, comprises of high-level procedures for planning, execution, control, and evaluation to ensure inclusion of all crucial factors of a project (Wells 2012).

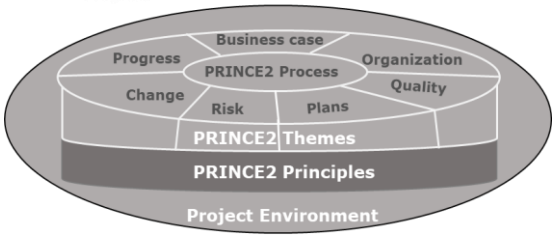


Figure 2.5: Prince2 Framework (Adapted from Axelos 2017)

2.4 Comparison of Agile Versus Traditional Methodologies

A comparative analysis of agile and traditional project management methodologies as well as prevalent methods used for implementation of ISD projects are presented in tables 2.2 and 2.3 and 2.4.

Table 2.2: Comparison of Agile and Traditional Project Management Methodologies (Adapted from Bergmann and Karwowski 2019; Fagarasan et al. 2021; Munteanu and Dragos 2021)

Specification	Project management methodologies	
Characteristics	Agile Method	Traditional Method
History	Introduced by 17 software leaders and emerged from agile manifesto created in 2001	Introduced by Winston Royce in 1970
Conceptual difference	Iterative	Linear and sequential
Focus (product/Process)	Process – low Product - high	Process – high Product – low
Documentation	Planned one sprint at a time	Comprehensive planning from start to finish
Reviews	Frequent at the end of each iteration	Periodic review at milestones or phase gates
Approvals	Project team is Empowered to take decisions	Requires approval from top management
Customer involvement	from beginning to end of project	before execution begins
Suitability/context	Project with changing requirements	Projects with clearly defined requirement
Quality control	defined on ongoing basis	Control measures are defined from beginning
Team structure	Proficient, collocated, self-organized and collaborative	Adequate skill, plan oriented and pre structured
Management/ Leadership style	Autocratic (Command and control)	Democratic (affiliative)
Organizational structure	flexible	Hierarchical
Communication format	Informal (face-to-face)	Formal (emails, report)
Communication frequency	daily	Periodic
Implementation	Rigorous and robust	Easy
Market	Dynamic and early	Mature and stable
Assumptions	Flexibility, collaboration and embracing change will increases project success	Detailed planning, logical sequence and documentation ensures project success
Problem escalation procedure	Issues can be managed by anybody	handled mostly by project manager
Size	Small teams and projects	Large teams and projects
Measure of success	Delivery of business value	Conformance to plan
Critical success factors	organizational vision and mission, top management support and user participation	change management skill, an adaptive organizational culture, project planning, monitoring, and control
Benefits	• Flexible • risk reduction • transparency • consistent delivery • enhanced quality, • improved customer satisfaction	• Accountability • role definition • sufficient documentation • clear expectations • predictable outcome • structured process
Limitations	• Precise effort needed can't be estimated. • Exact time of project delivery is not known. • Limited documentation • Over reliance on collaboration and expertise • Project outcome is not predictable. • Resource intensive	• not flexible, • Freezing of scope • delayed return on investment • too much planning and documentation which consumes time. • Change in requirement can cause a rework. • Limited stakeholder involvement • Overemphasis on control and process

Table 2.3: Comparison of Agile Methods Used in ISD projects (Adapted from Anand and Dinakaran 2016).

Characteristics	Scrum Method	Kanban Method	Extreme Programming Method
Development technique	Incremental and iterative	incremental	Incremental and iterative
Project type	versatile	Small projects	Small projects
Team size	6 to 10	Not specific	More than 20
Customer engagement	Product owner represents customer all through the project duration	During incremental releases	Entire project duration
Duration of single Iteration	2 to 4 weeks	Not specific	1 to 6 weeks

Table 2.4: Comparison of Traditional Methods Utilized in ISD Projects (Adapted from Krishna and Venkatajah 2017)

Characteristics	Waterfall method	Prince2 Method
Development technique	Linear	Process-based
Project type	Projects with Well-defined requirements	versatile
Team size	Large teams	Not specific
Customer engagement	Limited customer engagement usually at the beginning of project	Throughout project lifecycle
Suitability	Project with limited changes	can be tailored to any context

2.5 Overview of Information System Development (ISD) Projects

According to Matook and Vidgen (2014), Information system development projects (ISD) are subset of information systems projects (IS) which involves series of task including planning, analysis, design, implementation, testing and maintenance used to create novel computer systems and software applications or to adapt existing systems to meet specific needs of business and organization. The main goal of ISD projects is to provide tools needed to efficiently manage data and make informed strategic decisions.

In addition, Bourgeois and Bourgeois (2014), postulated that the project life cycle of information systems development projects consists of six stages; The first stage (planning phase) involves conducting feasibility studies, defining project scope, and developing a project plan. The second stage (analysis phase) focuses on examining the existing system, determining user needs, creating a system structure, and documenting specifications. This is followed by the third stage (design phase), which is centred on creating user interface as well as system components and developing test plans. The fourth stage (development and testing phase) involves writing codes and programs for selected system components and conducting tests to identify and resolve any faults. Then the fifth stage (implementation phase) where new system is built according to design specifications, users are coached on how to operate the new system and relevant documentation is provided. Lastly, is the sixth stage (maintenance phase) that deals on providing a support structure that will address potential defects, implement change requests, and manage routine system upgrade and backup.

Also, Marnewick, Erasmus and Nazeer (2017) opined that due to the distinct characteristics and complexity associated with Information systems development projects, it is paramount to take cognizance of different types of Information system development projects to be able to effectively manage them. The types of ISD they highlighted includes infrastructure projects (installation of hardware and software), customization projects (changing the look and feel of an existing system), integration projects (combining multiple systems), maintenance projects (providing ongoing technical support) and system implementation projects (a replacement or an upgrade of an existing system). Unegbu, Ikonne and Abia (2016) observed that implementation of ISD projects in ten branches of a Nigerian bank led to improvement in productivity, facilitated collaboration among teams and departments, reduced operational costs, provided insight into customer behaviours which helped to enhanced customer service and maintain competitive advantage.

2.6 Factors Affecting Adoption and Implementation of Agile and Traditional Project Management Methodologies in ISD Projects.

The identified factors that hinder adoption and implementation of agile and traditional methodology in ISD projects are categorized into three key dimensions namely organization, human and process in table 2.5.

Table 2.5: Factors Affecting Adoption and Implementation of APM & TPM in ISD Projects (Adopted from Spundak 2014; Van Casteren 2017; Ciric et al 2021; Burga et al. 2022)

Dimension	Agile factors	Traditional factors
Organization Type	• Organizational culture and structure • Resistance to change • Top management support • project size	• Top management support • Organizational culture and structure
Process	• Misfit between chosen agile method and project governance structure. • Lack of commitment to practices • Lack of understanding agile principles • Changing of frameworks after every iteration • Geographic distribution of teams- • inadequate customer involvement and feedback, • poor customization of agile methods	• late scope and requirement change request. • inadequate planning and control • misfit between business need and requirement specification • technological advancement • ambiguous requirement • project complexity • insufficient documentation
Human	• Inadequate knowledge • poor communication and collaboration • Team member's level of experience • Leadership style • commitment of project team • team perception • Inadequate training and coaching,	• Too many stakeholders • Project manager's level of experience • emotional intelligence • limited resources, time and budget • Leadership style • Team morale

2.7 Overview of Nigerian Banking Industry

The inception of banking in Nigeria can be said to have evolved in three eras beginning from 1892 to 1952, 1952 to 1985 and 1985 till date (Oluduro 2015). The first banks to be established in 1892 were First Bank of Nigeria and African Banking Corporation. Then, between 1893 to 1948 more banks such as National Bank, Pan-African Bank, British and French bank which is currently known as United Bank of Africa began operation (Ajayi and Sosan 2013). However, majority of these banks did not stand the test of time because they either went into liquidation or failed entirely owing to lack of regulations and guidelines, incompetency, and financial repression. This compelled the colonial administration to examine banking practice in Nigeria to identify the reason for incessant failures, giving rise to emergence of the first Banking Ordinance in 1952 aimed at ensuring order in commercial banking (Oluduro 2015).

Further to this, house of representatives established Central Bank of Nigeria (CBN) in March 1958 with the objective of upholding high standards in banking practice and promoting an efficient payment system in the nation. The financial institutions presently operational in Nigeria consists of 24 commercial banks, 893 Microfinance banks, 106 Finance Companies and 34 Mortgage Banks (CBN 2023).

2.8 ISD Projects Implemented in Nigerian Banking Industry

The revolutionary changes in Nigerian banking sector can be traced to recapitalization initiated by CBN in 2004 which occurred as mergers and acquisition that led to reduction of existing banks from 89 to 24 and investment in technology to improve service delivery and user experience. Prior to introduction of innovative solutions in the banking sector, there was unending queueing at the bank, inability to perform transactions remotely and exposure to armed robbery attack due to possession of huge sums in cash (Oluduro 2015). In response to these challenges the industry developed and implemented ISD projects such as Centralized Online Real-time Exchange (CORE) Banking Systems, Payment Systems and Customer Relationship Management (CRM) Systems which enabled them to increase revenue while streamlining operations and boosting customer satisfaction (Ohiani 2020).

2.8.1 Payment Systems

Payment systems can be described as a structure which facilitates both financial and non-financial transactions between organizations and individuals. In essence, the purpose of payments systems like Point of Sale (POS), internet banking/electronic payment, mobile banking and Automated Teller Machine (ATMs) is to help minimize financial risks, serve as intermediation channels for transactions, and implementation of monetary policy (CBN 2021). Oyelami, Adebiyi and Adekunle (2020), suggested that the payment systems have proven to be profitable to the bank and the customers at large being that customers are able to access their account anytime to monitor inflow and outflow of funds and pay bills on a secure platform irrespective of their location. Subsequently, banks generate revenues from charges on transactions performed using the systems, and auditing processes are made easier courtesy of the digital footprint left behind via the systems. For instance, analysis of transaction conducted using payment systems in 2021, signified a 5% increase in value of transactions generated from mobile apps, while internet banking accounted for 63.2% and 50.4% of the overall volume and value compared to the previous year (CBN 2021).

2.8.2 Customer Relationship Management (CRM) System

Majority of the service industries especially the banking sector uses the customer relationship management system as a strategic approach to keep track of customer demands to enable them deliver customer-centred services. Thus, CRM are ISD projects developed to coordinate and manage interactions and data between banks and their customers (Unegbu, Ikonne and Abia (2016).

Osifo and Omoregbe (2020) highlighted that implementation of CRM systems in Nigerian banks have led to reduction in customer attrition, cross-selling of new products, low operational and maintenance cost, efficient customer support, identifying product and service gaps and achieving competitive advantage. Similarly, Dazagbyilo et al. (2021) added that CRM systems facilitates automation and standardization, communication between the bank and their customers, collection of information for analysis, resolution of complaints, encourages collaboration among teams and enhances customer satisfaction and loyalty.

2.8.3 Core Banking System (CBS)

The term *core* stands for Centralized Online Real-time Exchange. Hence, a core banking system is a back-end system that processes daily banking activities like, account opening, cash withdrawal and deposits and customer onboarding for multiple branches of the same bank in real time (Haralayya 2021). Ukpabio, Olaposi and Siyanbola (2016) concluded that acquisition of core banking system software like Finacle, Equinox, T24, Flexcube, basis, phoenix and eBBS has bolstered development and growth as well as enabling banks to compete in the international financial market while highlighting that Finacle and Flexcube are the most used software in Nigerian banks.

2.9 Impact of Agile and Traditional Project Management on ISD Project Success

Müller and Jugdev (2012) concluded that the definition of project success has evolved in four eras; the first era (1960-1980), defined success based on the triple constraint; the second era (1980-1990), focused on utilization of case studies and anecdotes to develop a list of critical success factors; closely behind this came the third era (1990-2000), when systematic schemes and integration of frameworks emerged and lastly, the 21st century which is still evolving.

Despite extensive research in project success, there is still no agreement on what constitutes a successful project considering that the meaning and context varies in research findings, giving rise to development of different models, and frameworks for measuring project success. Serrador and Pinto (2015) asserted that for a project to be described as successful it must have been completed within scope and budget, on time and met the expectations of the stakeholders involved. This is consistent with Standish Group which posits that for a project to be certified successful, it must be within given timeline, allocated budget and satisfied customer needs irrespective of initial scope (Standish Group 2015 CHAOS Report).

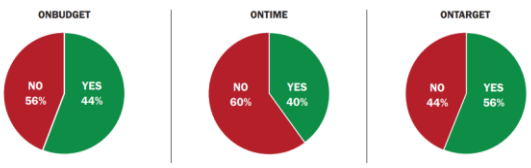


Figure 2.6: Projects on Budget, on Time and on Target for a Period of 5 years. (CHAOS Report 2015, pp 2)

Nevertheless, the 2021 report of "Dynamic Conditions for project success" identified nine unique conditions (interpersonal skills, agility, team ethics, trainings and certifications, diversity, proper usage of technology and data, contracts, knowledge management and sustainability), that

are to be employed at the discretion of project professional to ensure successful outcome of any project, program, or portfolio (APM 2022).

Regarding ISD, DeLone and McLean (2003) developed a success model that evaluates a project based on service quality, system quality, customer satisfaction, the net benefits, intention to use and quality of information. However, it has been argued that this model only provides criteria for measuring success after project completion and does not assess the process of project execution. Additionally, (Matook and Vidgen 2014) identified eight critical success factors for ISD projects which they categorized into four dimensions: management and organization (stakeholder involvement and governance structure), processes (response to change, pace for development and sustainability), people (champion of ISD project and method, team interaction and quality of relationship) and ISD method (practices and supporting tools).

Notwithstanding the numerous attempts by researchers and practitioners to identify success factors and develop frameworks that will help to not only enhance but to ensure success of ISD projects, the failure rate of has not decreased, rather projects continue to fail (Dwivedi et al. 2015). Ibitomi (2021), attributed the failures to inadequate identification and definition of project requirements whereas Baghizadeh, Cecez-Kecmanovic and Schlagwein (2020) suggested that a misalignment between the project characteristics and project management methodology adopted for implementation is the reason for failure. Similarly, (Joslin and Muller 2016; Krishna and Venkatajah 2017) argued that project management methodologies have a significant influence on the outcome of a project. This is consistent with the conclusion of Ciric et al. (2021) that the project management approach selected for a project determines the outcome as well as emphasizing that research on efficiency of project management methodologies and how they are correlated to project success is limited. Notably, Wells (2012) identified that literature is yet to agree on which of the project management methodologies is more efficient and ensures successful delivery of information system development projects.

Some typical instances of failed ISD projects include, The National Health Service (NHS) project known as Lorenzo; a record system intended to store patient records in 220 NHS trusts in Eastern and Midland part of UK at a cost of £3.1billion, was abandoned after UK government has already spent £10billion and not even a trust has a functioning Lorenzo (Syal 2013). Similarly, the UK ministry of defense recruitment scheme project that was aimed at helping the army to recruit online was 2 years behind schedule and still required an additional £50million to complete the project (Press Association 2014). Then, there is Hewlett-Packard (HP) and Nike which lost $160 million and $100 million in sales in 2004 and 2000 respectively because of system failure (Dwivedi et al. 2015). Also, the Nigeria Interbank Settlement System (NIBSS) platform which facilitates instant payment across payment channels, failed to process over 200,284 transactions (Ogunfuwa 2018).

Table 2.6: Agile versus Traditionally Managed Information system projects between 2011 to 2015 (adapted from CHAOS Report 2015, pp7)

Size	Methodology	Failed %	Successful %
Small size projects	Agile	4	58
	Traditional	11	44
Medium size projects	Agile	11	27
	Traditional	25	7
Large size projects	Agile	23	18
	Traditional	42	3
All size project	Agile	9	39
	Traditional	29	11

Proponents of agile argue that agile methods have demonstrated three times more successful outcomes in comparison to traditional techniques, and this high success rate of agile is the major reason it has been used in non-IT projects against information system and information technology projects it was originally designed for (Serrador and Pinto 2015; Fagarasan et al. 2021).

In contrast, critics surmised that while agile is flexible, embraces change, and focuses on satisfying customers, it can introduce misunderstanding among team members because it lacks documentation and detailed planning. Also, they noted that agile implementation requires high level of precision and robustness in adhering to prescribed process, over relies on expertise and does not define roles which can lead to project failure (Van Casteren 2017; Pace 2019, Munteanu and Dragos 2021). In same vein, proponents of traditional methods, opined that the logical sequence, detailed planning, early definition of project scope and clarity of roles and responsibilities is the reason traditionally managed information system projects produce an efficient and reliable product (Spalek 2016).

Alternatively, critics argue that the linear nature, upfront planning, and definition of scope at the beginning of project are the root causes of failure in projects. This is because the modification of requirements can require a rework which extends the project timeline and increases costs. They highlighted that the belief that a strict structured management style is more effective in managing complexity is false because most times that's where problems emerge from (Pace 2019). Project management methods is arguably a key factor in success of ISD projects considering it determines the outcome of a project.

In conclusion, the comparison of agile and traditional project management method revealed that despite the numerous frameworks to ensure successful delivery, ISD projects continue to fail. Most authors argued that selected project management approach is the reason ISD projects keep failing while some argued that simply choosing a suitable method is not enough to guarantee success, that the amount of work done, clear understanding of principles behind a chosen method and the ability to tailor a chosen method to the context of a project is what determines success. This contrasting argument brings up the following research questions.

1) Is an agile managed project more likely to succeed than a project that relied on traditional approach?
2) How can effectiveness of a methodology be measured?
3) Will adopting both methodologies guarantee project success?

4) How much agility is enough and is detailed planning a waste of time as proposed in literature?

3. Research Methodology

Research methodology is a systematic approach to addressing a research problem. This involves collecting and analysing data using diverse methods, providing an interpretation of data collected and making inferences based on research findings (Bouchrika 2023). Saunders, Lewis and Thornhill (2019) opined that to ensure that all important aspects of a research is considered, it is vital to understand the different stages involved in designing and conducting research studies, an observation that birthed their research model known as research onion consisting of six stages or layers including research philosophy, research approach, research methods, research strategy or design, research duration/time horizon and research techniques and procedures.

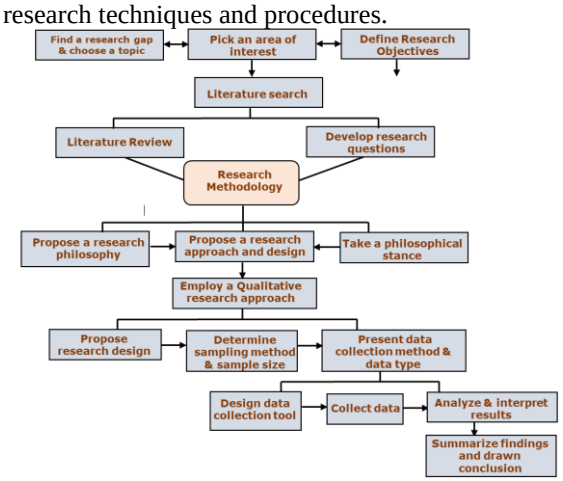


Figure 3.1: Extended Proposal Research Methodology (Created by Author)

3.1 Research Philosophy

Saunders, Lewis and Thornhill (2019) asserted that research philosophy is a set of values and assumptions concerning how knowledge is developed. In essence, one's research philosophy relates to their perceptive view of the world at large which influences and drives their research decision.
In addition, Kivunja and Kuyini (2017), surmised that all research philosophies are founded on three assumptions namely axiological, ontological, and epistemological. Specifically, **axiological assumptions** pertain to function of ethics and values in the research procedure, involving inquiries about how researchers manage their values and that of their research participants. Nonetheless, epistemology examines the fundamental assumptions about how knowledge is acquired, including how we can prove what we say to be true, what knowledge is considered legitimate, and how knowledge can effectively be communicated with others. The epistemological assumptions made by a researcher is what determines the type of contribution their research will add to knowledge (Goertz and Mahoney 2012). Then, Al-Saadi (2014) referred to ontology as assumptions about the nature of being and what exists, categories they belong to and their relationships. A researcher's ontological assumption impacts the choice of research objects and phenomena, their perception and approach towards them. Just like research philosophies are underpinned by assumptions, the assumptions equally take either an objective or subjective stance. Objectivism pertains to the belief that reality exists independently of human consciousness and can be understood through reason and observation. Alternatively, subjectivism relates to belief that the nature of reality is contingent on one's perception and experience (Al-Ababneh 2020).

Further to this, Saunders, Lewis and Thornhill (2019) concluded that research is guided by five philosophies such as interpretivism, pragmatism, positivism, postmodernism and critical realism. **Positivism** can be regarded as the belief that what is observed in scientific method is same as what is given in direct experience. The goal is to make predictions and offer explanations based on measurable outcomes which are built on four characteristics such as parsimony, empiricism, generalizability, and determinism. Thomas (2022), posited that **interpretivism** takes a subjective approach, stressing that humans differ from physical events owing to their ability to create meanings. Interpretivists examine meanings to develop deeper insights into organizational realities, focusing on cultural artifacts and personal experiences and strive to incorporate not only their own interpretations but also those of their participants into their research. Additionally, **postmodernism** emphasises how language and power dynamics shape how we perceive the world. Postmodernists challenges prevailing ideologies and give voice to opposing viewpoints that have been neglected as well as dissecting data to expose its discrepancies and gaps (Kivunja and Kuyini 2017). However, **critical realism** seeks to explain our experiences by comprehending the fundamental realities that shape the things we see. Using a variety of research techniques, critical realists examine the historical development of societal and organisational structures. (Abdelhakim and Raghda 2021), asserted that **pragmatism** believes that since the world is not static and constantly changing due to decisions and actions taken, researchers ought to be free to employ a philosophy or methodology they deem most effective to analyse a research issue.

Considering the research philosophies and philosophical assumptions discussed above, this study proposes an interpretivism philosophy while taking an ontological philosophical stance. The choice of interpretivism is informed by the philosophy's emphasis on understanding the complex and diverse experiences of human beings and their interpretation of occurrences. Therefore, by interacting with individuals in Nigerian banking sector who have used both agile and traditional project management methodologies in managing information system development projects, this study will gain insight into personal descriptions, perceptions, and interpretation of how these methodologies can influence project success. Also, the ontological stance is because ontology is concerned with existence of entities and where they belong. Against this backdrop, this research assumes that agile and traditional project management methodologies exist and have an impact on project success. This is because the study will explore the existence of agile and traditional project management methodologies in the Nigerian banking sector, where they belong (the relevance) in the development of information system projects, and how they affect the success of the projects.

3.2 Research Approach

Research approach pertains to a plan of action which guides a research study. It involves identifying the type of data to be collected and its source, as well as the procedures for data gathering, analysis and interpretation. A research study can take a qualitative (unstructured, subjective) approach, quantitative (structured, objective) approach or a mixed methods (combination of structured and unstructured) approach in conducting research (Creswell and Creswell 2017).

3.2.1 Qualitative Research

Haq (2015) described qualitative research as an exploratory approach that focuses on individual's perceptions and experiences to gain an insight into their social phenomenon. It seeks to comprehend the mechanisms and underlying reasons for the functioning of a particular social construct within a specific setting. Also, Choy (2014), noted that qualitative research employs an interpretivist philosophy, inductive research approach, and unstructured data collection strategy in conducting research studies, while highlighting types of qualitative research such as case study, ethnography, action research and grounded theory.

3.2.2 Quantitative Research

Basias and Pollalis (2018), asserted that quantitative research focuses on investigating how variables relate to each other using numerical data. It adopts a positivist philosophy, statistical techniques, and structured data collection methods in conducting research study. Moreover, Creswell (2014) added that quantitative research uses an objective and deductive approach, concentrates on developing and testing a hypothesis, and drawing conclusions based on the hypothesis.

3.2.3 Mixed Method Approach

Mixed method is an integration of quantitative and qualitative approach in a concurrent or sequential manner to provide a comprehensive understanding of social relations and their complexities. The purpose of this approach is to enhance the validity and generalizability of research findings. It takes an inductive or deductive approach, integrates a positivist and interpretivist philosophy, and utilizes numerical and non-numerical data (Bouchrika 2023). Haq (2015) concluded that mixed method approach provides a comprehensive understanding of the phenomenon under study. A comparison of research approaches is presented in table 3.1.

Table 3.1: Comparison of Research Approaches (adapted from Haq 2015; Basias and Pollalis 2018)

Characteristics	Qualitative	Quantitative	Mixed Method
Aim	To understand why and how of a social construct	To test relationships among variables	To provide a comprehensive understanding
Philosophical assumption	Interpretivism	Positivism	Integrates an interpretivist and positivist philosophies
Research approach	Inductive and subjective	Deductive and objective	Inductive and deductive
Data type	Non numerical	numerical	Numerical and non-numerical
Sample size	Small	Large	Both small and large
Data collection strategy	Unstructured eg Interviews, focus groups, open ended questionnaires	Structured eg surveys, closed questionnaires	Combines qualitative and quantitative based on objectives of research
Data analysis technique	Thematic, content analysis	Statistical analysis,	Combines techniques from qualitative and quantitative approach
Strength	- Examines underlying values or beliefs. - Aids in understanding nature and complexity of the social construct being studied	- Facilitates processing of large volume of data - Aids in highlighting challenges	-Provides comprehensive understanding. - Can be tailored to research problem
Weakness	- Individual perception and experiences influence findings. - Findings cannot be generalised to population of study	-Difficulty understanding context of event - Lacks depth	- Too complex - Extra resources

3.3 Proposed Research Approach

Against the various approaches highlighted above, this research proposes a qualitative research approach to achieve the aim and objectives of this study, as it seeks to compare traditional and agile project management methodologies to understand how they affect outcome of information system development (ISD) projects. To accomplish this, the study will investigate the experiences of people that have utilized these methodologies in executing ISD projects to comprehend their perceptions regarding how the two methodologies influences project success. The choice of a qualitative research instead of quantitative or mixed method is because it will allow for an in-depth investigation of individual perspectives and lived experiences to identify elements that enhance project success of ISD projects to gain insight into problems associated with adoption and implementation of each methodology. Worthy of note is the fact that over half of the researchers in the studies reviewed in Chapter 2 utilized qualitative methods in their studies. This buttresses Kupfer's (2018) conclusion that qualitative research approach is the dominant research method utilized in information system development projects, as evidenced in their review of 1,023 articles on information system projects. Similarly, Basias and Pollalis (2018) opined that qualitative approach is best for management and technology related research studies. Based on these observations, it can be inferred that a qualitative approach will be more suitable for accomplishing the objectives and research questions of this study.

3.4 Research Design

This is the conceptual structure or approach that guides the collection, evaluation and interpretation of data using various techniques, procedures, and tools to ensure that findings are valid and reliable. The choice of research design is dependent

on the research approach selected because different approaches require different research designs (Haq 2015). According to Alavi and Habek (2016), qualitative research approach uses designs such as ethnography, case study, narrative research, grounded theory, and action research; whereas mixed methods research employs design strategies including concurrent transformative, , concurrent nested design, sequential exploratory design, sequential transformative design, concurrent triangulation design and sequential explanatory design; and quantitative approach utilizes an experimental (experimental and quasi-experimental) or non-experimental (descriptive, correlation and descriptive comparative) strategy in conducting a research study (Choy 2014).

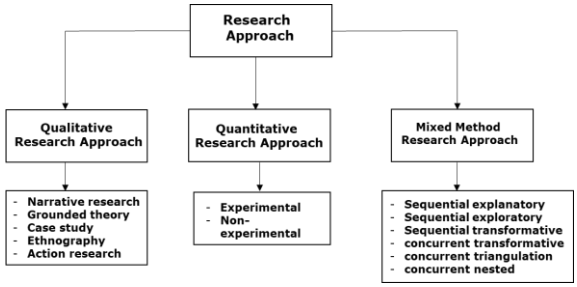


Figure 3.2: Research Designs (Adapted from Choy 2014; Alavi and Habek 2016).

Given that this study is proposing a qualitative approach, it will employ a case study research design, which refers to an empirical examination of a contemporary event within its actual setting, specifically when the boundary between the event under study and the situation is vague (Mardis, Hoffman and Rich 2014). Then, Ibitomi (2021) emphasized that case study approach aids in obtaining practical insights on issues unique to a given industry that is under study, hence facilitating learning and improvements in practice.

The choice of a case study is because it will help to provide insight into the impact of agile and traditional project management methodologies on project success in the context of information system development projects. Moreover, it will permit acquisition of information necessary to comprehend the complexities of procedures involved in adopting and implementing agile and traditional project management methodologies. Also, it will facilitate the gathering of empirical and context specific information from a real-life setting like the financial institutions where these methodologies are utilized, as well as allow access to individuals with significant expertise and experience. In addition, the approach will aid in comparing perceptions of participants from five banking institutions with different implementation processes to identify connections between their respective procedures.

3.5 Sampling and Sample Size

A sample is a smaller group chosen from a larger population for the purpose of research, while sampling is the procedure of selecting a specific number of people, occurrences, or elements of a population. The aim of sampling is to get a representative sample that truly captures the attributes of a population, so that research findings can be generalised to the entire population (Etikan and Bala 2017). Berndt (2020) emphasized that a chosen method of sampling ought to be as stringent as possible to minimize bias and increase representativeness. The sampling methods include probability and non-probability sampling methods as highlighted by (Tyrer and Heyman 2016). He added that quantitative research utilizes a probability or non-probability sampling while qualitative research employs non-probability sampling methods and mixed method research combines both probability and non-probability.

The sample size will consist of fifteen participants that will be chosen from five banks namely, Heritage bank, First bank, United Bank of Africa, Wema bank and Fidelity bank. The participants will comprise of four project managers, four bank executives, four information system developers and three information technology consultants that have overseen, developed, or managed information system development project in Nigerian banks. The sample size will provide adequate data to make insightful comparison on effectiveness of agile and traditional project management method in ISD projects. A detailed description of sampling methods and their subtypes is presented in table 3.2.

Then, a non-probability sampling method, precisely purposive sampling will be used to select interview participants. This is because purposive sampling method is best suited for qualitative research being that it enables selection of participants with relevant knowledge and information associated with phenomenon being studied (Elfil and Negida 2017). Hence, employing purposive sampling will aid in selection of participants that have managed ISD projects using either agile, traditional, or both project management methodologies.

Prior to conducting an interview, research participants will be chosen based on the following parameters: a) participants must have experience working with either traditional or agile project management methods b) participants must have extensive experience in executing information, system development projects within Nigerian banking sector, c) participants must hold a significant position in the project team, d) participants must have participated in a successfully delivered Information system development project within the last three years. These criteria will enable comparison of effectiveness of agile and project management methodologies in developing information systems projects, ensure collection of reliable and relevant data and provide more insight into the topic of study considering participants that will be interviewed will have required expertise and experience.

3.6 Data Collection

Syed (2016) regarded data collection as the process of employing specific procedures to acquire data with the intention of achieving specific research objectives, responding to research questions, and analysing findings. The purpose of acquiring data is to gather quality and accurate data to ensure development of reliable and valid responses to the research questions. The data collection methods used in qualitative research include in-depth interviews (unstructured or semi structured), survey (using open ended questionnaires), focus group discussion, observations, and document analysis (Haq 2015). There are different types of

data used in research studies which can be categorized into primary and secondary data. **primary data** are information gathered from first-hand experience or directly from the source. It is dependable, objective, genuine and has not yet been published or modified by other researchers (Syed 2016), whereas **secondary data** pertains to information that has previously been gathered and published. It possesses a predetermined level of credibility and dependability that there is no need for the researcher reusing the data to re-examine it (Berndt 2020). This study will utilize both primary and secondary types of data. About forty-six journal articles (secondary data) (shown in table 2.1) was sourced from the internet and credible database such as Association of Project Management (APM) and Project Management Institute (PMI) webpages, Taylor and Francis, Emerald, Sage, Science Direct and Elsevier to gather data that will facilitate comprehensive comparison of agile and traditional project management methodologies. Findings from literature review addressed some of the research objective outlined in section 1.4 as information was extracted on the characteristics, types, principles, and practices of traditional and agile project management methods. In terms of the primary data, an in-depth interview will be employed to get an insight into individual perception on how the stated methodologies affect ISD project outcome in Nigerian banks, using a semi structured approach. Adhabi and Anozie (2017) referred to semi structured interview as a data collection method which combines components of structured and unstructured interviews like open and close-ended questions, facilitates selection of participants related to study topic and can be done individually or in groups. A semi structured interview is proposed because it allows examination of the phenomenon under study through predetermined questions, while also providing an opportunity to ask follow-up questions and gain deeper insight into responses of interviewees (Ibitomi 2021). The interview will be conducted online using platforms such as Zooms, Microsoft Teams, Google Meeting or Skype, depending on the participant's preference and interview will last for 30 minutes. Majid et al. (2017) suggested that conducting a pilot interview is essential to examine the validity and precision of interview guide, and to provide an opportunity for necessary modifications.

Table 3.2: Types of Data Collection Methods (Adapted from Haq 2015)

Data Collection methods	Features
In-depth interviews	Involves one-on-one interview of selected individuals, using predetermined interview questions as well as taking cue from researcher-participant conversation. Takes the form of structured (standardized or scheduled), semi structured (combines unstructured and structured approach) and unstructured interviews (informal, not predetermined)
Focus groups	Engagement of certain number of individuals during which anybody can answer any question or buttress on the answer of another
Observations	involves real time experience of occurrences, interactions and conduct of individuals or group of people
Surveys	Entails asking participants open-ended questions through questionnaires
Document analysis	Pertains to the analysis and interpretation of written documents to extract relevant information

Table 3.3: Data Collection Tool (Interview Guide)

1	What is the best approach for choosing project management methodology for ISD projects?
2	Please explain procedures for implementing selected project management methods.
3	What is your experience(s) working with either traditional or agile project management methods in managing ISD projects?
4	In your opinion, what are the benefits and challenges of using traditional or agile project management methods in ISD projects?
5	Give examples of how agile or traditional project management methodologies have been used in Nigerian banking system and the outcome of the project?
6	What are the key differences between traditional and agile project management methods?
7	In your opinion, what are the challenges that can be encountered when using traditional or agile project management methodologies in ISD projects?
8	Which of the methodologies do you think is best for managing ISD projects?
9	Based on your experience, do you think that the chosen method for managing ISD projects is what determines the outcome of the project?
10	Which of the methodologies is prevalent in your organization? If both are present, are they combined in managing projects or used individually?

3.7 Data Analysis and Interpretation

This refers to a systematic process of examining and interpreting gathered data using numerical and analytical techniques to reveal valuable insights, draw conclusions and make informed decision. The main aim of data analysis is to extract useful information and knowledge from patterns, relationships, and trends within the context of a study, to gain a more comprehensive understanding of different events (Graue 2015).

Haq (2015) asserted that qualitative data can be analysed using techniques such as grounded theory, interpretative phenomenological analysis, theme analysis, content analysis, discourse analysis and narrative analysis. Alternatively, Sirisilla (2022) opined that quantitative data is analysed using statistical tools like MATLAB, Structural Equation Modelling (SEM), STATA, Statistical Package for Social Science (SPSS), STATISTICA and MNITAB. Being that this proposal intends to employ a qualitative research approach, the methods for analysing qualitative data are further described in the table 3.6.

In accordance with the proposed research approach (qualitative method), this study will use a thematic analysis technique, which involves identifying, organizing, analysing, and reporting trends in a data. This is because thematic analysis will help to discover underlying meanings, perceptions, and experiences of participants while showing linkage and trends between different themes (Haq 2015). Also, it has been proven to be the most suitable qualitative data analysis technique. Further to this, the NVivo 12 pro software a Computer Aided Qualitative Data Analysis Software (CAQDAS) program will be employed to facilitate the organization, coding, visualization, analysis, and reporting of data that will be gotten from the in-depth

interview (Zamawe 2015). The various steps involved in thematic analysis of qualitative data is shown in figure 3.2.

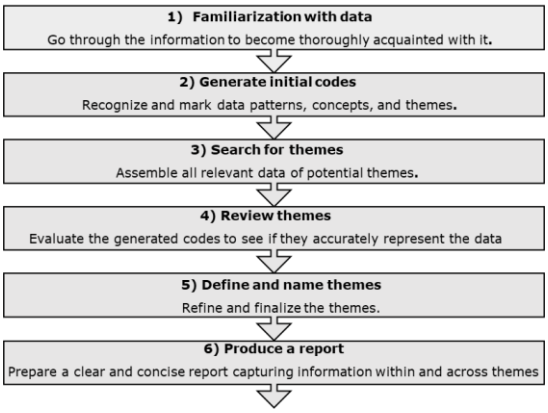


Figure 3.3: Steps involved in Thematic Analysis (Adapted from Aghdam et al. 2020)

3.8 Plan of Investigation

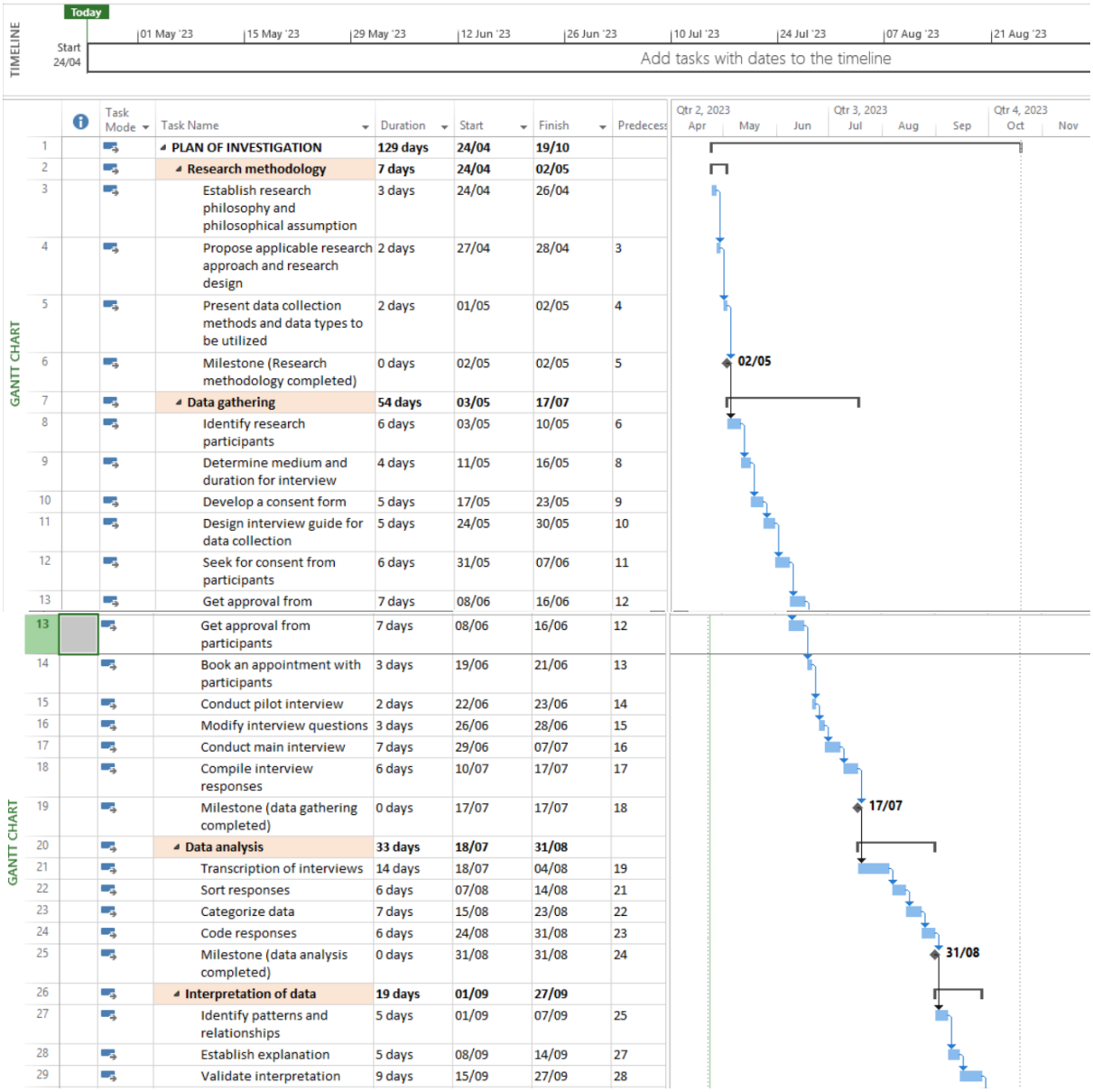
Having established the philosophies, approaches, methodologies, data collection methods, data types, sampling techniques, sample size and data analysis technique for this study, a research plan will be developed using a Work Breakdown Structure (WBS). A WBS is utilized because is a planning tool that breaks down project tasks into smaller, hierarchical, and manageable work packages and sub-activities, aiding in project planning and scheduling (Pellerin and Perrier 2019). The WBS will outline six main activities that needs to be completed to progress this proposal to a dissertation if necessary. These activities include establishing research methodology, data gathering, data analysis, interpretation of data, conclusion, and submission of project. To ensure efficient monitoring of outlined tasks, the WBS will be represented in a Gantt chart, another planning tool which shows start and end dates of project tasks and the connection between sub-activities, allowing for easy tracking of project progress (Geraldi and Lechter 2012).

Once the WBS (see table 3.4 below) has been developed and a Gantt chart (figure3.4) has been plotted using the Microsoft Project, the next step is to draft a consent letter and prepare a data collection tool (see table 3.3 above) which will take the form of an interview guide, in readiness for the interview. The consent letter will be distributed to identified research participants to seek for their consent to participate in the study. Upon receipt of approval from participants, interviews will be scheduled, followed by a pilot interview to ensure that the interview guide captures the research objectives and questions accurately. If any flaws are found the questions will be refined before proceeding with the main interview. Following the completion of the interviews, the collected data will be processed and analysed using NVivo software. The subsequent findings will be interpreted, and conclusions drawn. Finally, the project write-up will be revised, finalised, and submitted, bringing the project to an end.

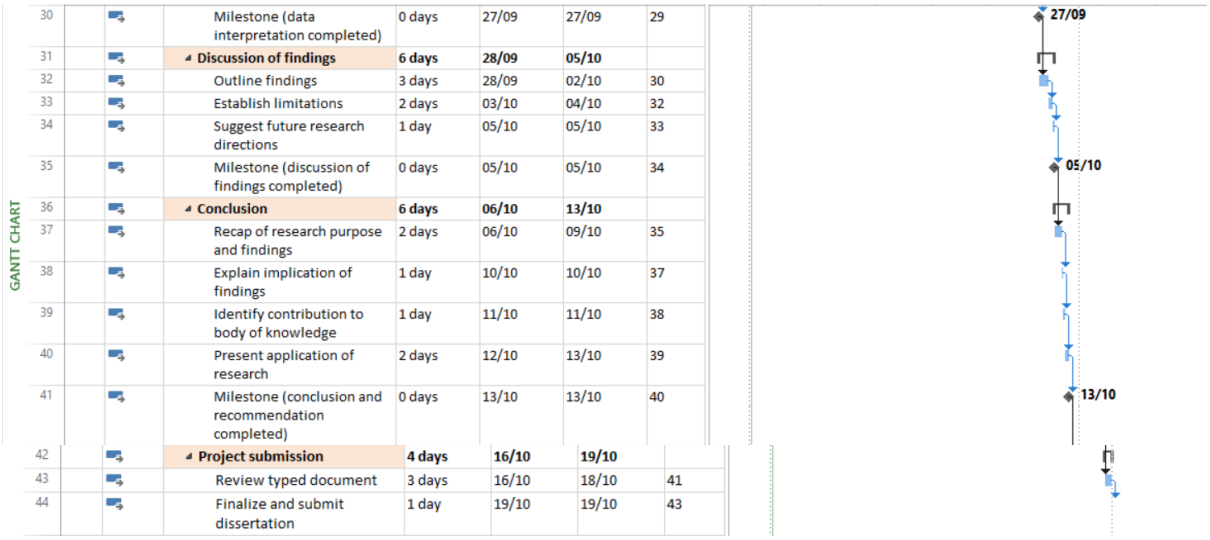
Table 3.4: Work Breakdown Structure

Predecessor number	Activity Number	Project	Duration	Predecessors
1		**PLAN OF INVESTIGATION**		
2		**Research methodology**		
3	1	Establish research philosophy and philosophical assumption	3	
4	2	Propose applicable research approach and research design	2	3
5	3	Present data collection methods and data types to be utilized	2	4
6		Milestone (Research methodology completed)		5
7		**Data gathering**		
8	4	Identify research participants	6	6
9	5	Determine medium and duration for interview	4	8
10	6	Develop a consent form	5	9
11	7	Design interview guide for data collection	5	10
12	8	Seek for consent from participants	6	11
13	9	Get approval from participants	7	12
14	10	Book an appointment with participants	3	13
15	11	Conduct pilot interview	2	14
16	12	Modify interview questions	3	15
17	13	Conduct main interview	7	16
18	14	Compile interview responses	6	17
19		Milestone (data gathering completed)		18
20		**Data analysis**		
21	15	Transcription of interviews	14	19
22	16	Sort responses	6	21
23	17	Categorize data	7	22
24	18	Code responses	6	23
25		Milestone (data analysis completed)		24
26		**Interpretation of data**		
27	19	Identify patterns and relationships	5	25
28	20	Establish explanation	5	27
29	21	Validate interpretation	9	28
30		Milestone (data interpretation completed)		29
31		**Discussion of findings**		

32	22	Outline findings	3	30
33	23	Establish limitations	2	32
34	24	Suggest future research directions	1	33
35		Milestone (discussion of findings completed)		34
36		**Conclusion**		
37	25	Recap of research purpose and findings	2	35
38	26	Explain implication of findings	1	37
39	27	Identify contribution to body of knowledge	1	38
40	28	Present application of research	2	39
41		Milestone (conclusion and recommendation completed)		40
42		**Project submission**		
43		Review typed document	3	41
44		Finalize and submit dissertation	1	43



	Task Mode	Task Name	Duration	Start	Finish	Predecess
1		**PLAN OF INVESTIGATION**	**129 days**	**24/04**	**19/10**	
2		**Research methodology**	**7 days**	**24/04**	**02/05**	
3		Establish research philosophy and philosophical assumption	3 days	24/04	26/04	
4		Propose applicable research approach and research design	2 days	27/04	28/04	3
5		Present data collection methods and data types to be utilized	2 days	01/05	02/05	4
6		Milestone (Research methodology completed)	0 days	02/05	02/05	5
7		**Data gathering**	**54 days**	**03/05**	**17/07**	
8		Identify research participants	6 days	03/05	10/05	6
9		Determine medium and duration for interview	4 days	11/05	16/05	8
10		Develop a consent form	5 days	17/05	23/05	9
11		Design interview guide for data collection	5 days	24/05	30/05	10
12		Seek for consent from participants	6 days	31/05	07/06	11
13		Get approval from	7 days	08/06	16/06	12
13		Get approval from participants	7 days	08/06	16/06	12
14		Book an appointment with participants	3 days	19/06	21/06	13
15		Conduct pilot interview	2 days	22/06	23/06	14
16		Modify interview questions	3 days	26/06	28/06	15
17		Conduct main interview	7 days	29/06	07/07	16
18		Compile interview responses	6 days	10/07	17/07	17
19		Milestone (data gathering completed)	0 days	17/07	17/07	18
20		**Data analysis**	**33 days**	**18/07**	**31/08**	
21		Transcription of interviews	14 days	18/07	04/08	19
22		Sort responses	6 days	07/08	14/08	21
23		Categorize data	7 days	15/08	23/08	22
24		Code responses	6 days	24/08	31/08	23
25		Milestone (data analysis completed)	0 days	31/08	31/08	24
26		**Interpretation of data**	**19 days**	**01/09**	**27/09**	
27		Identify patterns and relationships	5 days	01/09	07/09	25
28		Establish explanation	5 days	08/09	14/09	27
29		Validate interpretation	9 days	15/09	27/09	28



30		Milestone (data interpretation completed)	0 days	27/09	27/09	29
31		**Discussion of findings**	**6 days**	**28/09**	**05/10**	
32		Outline findings	3 days	28/09	02/10	30
33		Establish limitations	2 days	03/10	04/10	32
34		Suggest future research directions	1 day	05/10	05/10	33
35		Milestone (discussion of findings completed)	0 days	05/10	05/10	34
36		**Conclusion**	**6 days**	**06/10**	**13/10**	
37		Recap of research purpose and findings	2 days	06/10	09/10	35
38		Explain implication of findings	1 day	10/10	10/10	37
39		Identify contribution to body of knowledge	1 day	11/10	11/10	38
40		Present application of research	2 days	12/10	13/10	39
41		Milestone (conclusion and recommendation completed)	0 days	13/10	13/10	40
42		**Project submission**	**4 days**	**16/10**	**19/10**	
43		Review typed document	3 days	16/10	18/10	41
44		Finalize and submit dissertation	1 day	19/10	19/10	43

Figure 3.4: Gantt Chart presentation of Plan of Investigation

3.9 Research Validity and Reliability of Qualitative Research

Validity refers to measure of how well research findings reflect the reality of the phenomenon under investigation while reliability has to do with the consistency and replicability of research findings. In essence, research validity and reliability also known as rigor pertains to the extent to which the research subject has been accurately measured, as well as whether the measurement process or technique produces consistent results when recreated by other researchers using similar research subjects (Haq 2015). Cypress (2017) argued that incorporating strategies to ensure rigor into the qualitative research process is pertinent to guarantee the credibility, replicability, and generalizability of research findings. Accordingly, he emphasized that credibility, transferability, dependability, and confirmability are key criteria for ensuring that findings of a qualitative research are valid and reliable.

This study aims to achieve credibility by reviewing interview responses and sharing feedback with participants to ensure that their experiences are correctly represented. To ensure confirmability, the research process will be documented in detail and transparency maintained throughout data analysis. Dependability will be accomplished by having an expert or colleague review the transcribed data for accuracy and consistency. To achieve transferability, a purposive sampling method will be employed and a thorough explanation of the research context, respondents, data collection and analysis procedures will be provided to enable readers to understand the results of the research and how they may apply to different situation.

3.10 Research Limitations

Possible constraints that may arise include accessibility to participants, delayed response of participants to invitations to participate, and selected participants withdrawing from the research before the interview process is completed which could affect generalizability and representativeness of research findings.

3.11 Ethical Considerations

Ethical considerations refer to the regulations, standards, and principles that researchers must observe to ensure that their research is carried out in an ethical and responsible manner. The goal of ethical consideration in research study is to address concerns on dignity, rights and wellbeing of participants as well as ensuring that research is conducted with integrity and honesty, and findings are presented in an accurate and transparent manner (Creswell 2014). Some ethical considerations in research include protecting the right and privacy of participants, getting their informed consent, reducing harm and risk to respondents, confidentiality and ensuring voluntary participation. Confidentiality necessitates that respondents be notified that the information they provide will treated confidentially and will not be disclosed to third parties while informed consent involves informing participants about the purpose of a research and asking if they wish to participate (Saunders, Lewis and Thornhill 2019).

This research will adhere to ethical considerations by first sending a consent letter to potential participants and obtaining their approval prior to their engagement. The consent letter will clearly disclose the purpose and nature of the research, while also informing participants that they can withdraw from the study at any point. Additionally, the research will maintain confidentiality by avoiding questions that could potentially reveal the identities of the interviewees. This is essential in protecting the privacy and anonymity of the participants, which is a key ethical principle in research.

3.12 Summary of Chapter

To investigate the effectiveness of both agile and traditional project management methodologies in ensuring successful delivery of information system development projects in Nigerian banks, this research proposes an interpretivist philosophy, an ontological assumption, and a qualitative research approach. A case study research design will be utilized, with a non-probability sampling technique to recruit a sample of fifteen participants comprising project managers, bank executives, information technology consultants, and information system developers from five banks. The study will employ both primary and secondary data sources, and data will be collected through in-depth interviews using a

semi-structured interview guide, with each interview expected to last approximately thirty minutes. The data gathered will be transcribed, organized, and analysed using NVivo software and findings will be carefully examined to draw appropriate conclusions. Furthermore, a comprehensive plan of investigation has been devised to facilitate the advancement of this proposal towards a dissertation, if deemed necessary.

4. Conclusion and Recommendation

This study aimed to compare agile and traditional project management methodologies and their impact on project success in information systems development projects, with a focus on Nigerian banks. The study observed that both methodologies have their benefits and drawbacks, and the choice of methodology depends on the context and requirements of the project.

The comparative analysis revealed that agile methodology is more befitting for projects with uncertain or rapidly changing requirements, while traditional methodology is best for projects with well-defined and stable requirements. Additionally, it was observed that agile methodology is more flexible, adaptable, emphasizes collaboration and responsive to changes, while traditional methodology is more structured, rigorous, and predictable.

Furthermore, the study revealed that the adoption and implementation of project management methodologies are hindered by several factors, including organizational structure and culture, processes, and people. In addition, the success of information systems development projects depends on various factors such as project management skills, level of expertise, communication, user involvement, team collaboration and project complexity, not necessarily on the project management methodology chosen. This study recommends integration of both traditional and agile methodologies in managing ISD project to leverage the flexibility of agile and the stability offered by traditional methods.

4.1 Research Contribution and Application

This proposal contributes to literature by expanding the research on the effectiveness of project management methodologies and their influence on project success. The research provides insight into the usefulness of both agile and traditional project management methodologies, the factors impacting project success of ISD projects, and the challenges faced in adopting and implementing agile and traditional methods in the Nigerian banking sector. Also, the study identified strengths and weaknesses of traditional and agile project management methodologies as well as their suitability for various kinds of projects. By shedding light on these crucial elements, this study aims to inform project managers, academics, and organizations on the best practices for managing information system development projects, to ensure successful project outcomes.

References

[1] ABDELHAKIM, A. and RAGHDA, M., 2021. Adopted Research Designs by Tourism and Hospitality Postgraduates in The Light of Research Onion. *International Journal of Tourism and Hospitality Management*, 4(2), pp. 98-124.

[2] ADHABI, E. and ANOZIE, C., 2017. Literature review for the type of interview in qualitative research. *International Journal of Education*, 9(3), pp. 86-97.

[3] AGBEJULE, A. and LEHTINEVA, L., 2022. The relationship between traditional project management, agile project management and teamwork quality on project success. *International Journal of Organizational Analysis*, 30(7), pp. 124-136.

[4] AGHDAM, A. et al., 2020. Improving the theoretical understanding toward patient-driven health care innovation through online value cocreation: systematic review. *Journal of medical Internet research*, 22(4), pp. e16324.

[5] AHIMBISIBWE, A., CAVANA, R.Y. and DAELLENBACH, U., 2015. A contingency fit model of critical success factors for software development projects: A comparison of agile and traditional plan-based methodologies. *Journal of Enterprise Information Management*, 28(1), pp. 7-33.

[6] AJAYI, T. and SOSAN, M., 2013. The Evolution of Nigerian banking system, supervision and current challenges *(June 27, 2013)*, Available at SSRN: https://ssrn.com/abstract=2286200

[7] AKHMETSHIN, E.M., ROMANOV, P.Y., ZAKIEVA, R.R., ZHMINKO, A.E., ALESHKO, R.A., MAKAROV, A.L., 2019. Modern approaches to innovative project management in entrepreneurship education: A review of methods and applications in education. *Journal of Entrepreneurship Education*, 22, pp. 1-15.

[8] ALAIDAROS, H. and OMAR, M., 2017. Software project management approaches for monitoring work-in-progress: A review. *Journal of Engineering and Applied Sciences*, 12(15), pp. 3851-3857.

[9] AL-ABABNEH, M.M., 2020. Linking ontology, epistemology and research methodology. *Science & Philosophy*, 8(1), pp. 75-91.

[10] AL-ZEWAIRI, M., BILTAWI, M., ETAIWI, W. AND SHAOUT, A., 2017. Agile software development methodologies: Survey of surveys. *Journal of Computer and Communications*, 5(05), pp. 74.

[11] ALAVI, H. and HĄBEK, P., 2016. Addressing research design problem in mixed methods research. *Management Systems in Production Engineering*, 21(1), pp. 62-66.

[12] AL-SAADI, H., 2014. Demystifying Ontology and Epistemology in research methods. *Research gate*, 1(1), pp. 1-10.

[13] ANAND, R.V. and DINAKARAN, M., 2016. Popular agile methods in software development: Review and analysis. *International Journal of Applied Engineering Research*, 11(5), pp. 3433-3437.

[14] APM, 2022. *Conditions for Project Success.* [online]. Available from: https://www.apm.org.uk/resources/find-a-

resource/conditions-for-project-success/ [Accessed 07 April 2023].

[15] AXELOS, 2017. *Project management & PRINCE2*. [online]. Available from: https://www.omnicom.digital/en/areas-of-interest/project-management-prince2-2/ [Accessed 12 April 2023].

[16] AZOLIBE, B.C., OKONKWO, J.J. and OBI-NWOSU, V.O., 2023. Technology-based banking and bank deposit: The Nigerian commercial banks' experience. *African Journal of Science, Technology, Innovation and Development*, 15(1), pp. 31-44.

[17] BASIAS, N. and POLLALIS, Y., 2018. Quantitative and qualitative research in business & technology: Justifying a suitable research methodology. *Review of Integrative Business and Economics Research*, 7, pp. 91-105.

[18] BAGHIZADEH, Z., CECEZ-KECMANOVIC, D. and SCHLAGWEIN, D., 2020. Review and critique of the information systems development project failure literature: An argument for exploring information systems development project distress. *Journal of Information Technology*, 35(2), pp. 123-142.

[19] BECK, K., 2001. *Agile Manifesto.* [online]. Available from: http://agilemanifesto.org/

[20] BERGMANN, T. and KARWOWSKI, W., 2019. Agile project management and project success: A literature review. *Advances in human factors, business management and society: Proceedings of the AHFE 2018 International Conference on Human Factors, Business Management and Society, July 21-25, 2018, loews sapphire falls resort at universal studios, orlando, florida, USA 9*. 2019. Springer, pp. 405-414.

[21] BERNDT, A.E., 2020. Sampling methods. *Journal of Human Lactation*, 36(2), pp. 224-226.

[22] BORMANE, L. et al., 2016. Impact of requirements elicitation processes on success of information system development projects. *Information Technology and Management Science*, 19(1), pp. 57-64.

[23] BOUCHRIKA, I., 2023. How to Write Research Methodology: Overview, Tips, and Techniques. [online]. Available from: https://research.com/research/how-to-write-research-methodology [Accessed 16 April 2023].

[24] BOURGEOIS, D. and BOURGEOIS, D., 2014. Information Systems for Business and Beyond. [online]. Available from: https://pressbooks.pub/bus206/chapter/chapter-10-information-systems-development/ [Accessed 9th April 2023].

[25] BURGA, R., SPRAAKMAN, C., BALESTRERI, C. AND REZANIA, D., 2022. Examining the transition to agile practices with information technology projects: Agile teams and their experience of accountability. *International Journal of Project Management*, 40(1), pp. 76-87.

[26] CBN, 2023. Financial Institutions. [online]. Available from: https://www.cbn.gov.ng/Supervision/finstitutions.asp [Accessed 21 March 2023].

[27] CBN, 2021. Central Bank of Nigeria 2021 Annual Economic Report. [online]. Available from: https://www.cbn.gov.ng/Out/2023/RSD/2021%20CBN%20ANNUAL%20ECONOMIC%20REPORT.a.pdf [Accessed 22 March 2023].

[28] CHAUHAN, B., RANA, A. and SHARMA, N., 2017. Impact of development methodology on cost & risk for development projects. *2017 6th international conference on reliability, infocom technologies and optimization (trends and future directions) (ICRITO)*. 2017. IEEE, pp. 267-272.

[29] CHOY, L.T., 2014. The strengths and weaknesses of research methodology: Comparison and complimentary between qualitative and quantitative approaches. *IOSR journal of humanities and social science*, 19(4), pp. 99-104.

[30] CIRIC, D., DELIC, M., LALIC, B., GRACANIN, D and LOLIC, T., 2021. Exploring the link between project management approach and project success dimensions: A structural model approach. *Advances in Production Engineering & Management*, 16(1),

[31] CIRIC L., LALIC, B., DELIĆ, M., GRACANIN, D., AND STEFANOVIC, D., 2022. How project management approach impact project success? From traditional to agile. *International Journal of Managing Projects in Business*, 15(3), pp. 494-521.

[32] CRESWELL, J.W. and CRESWELL, J.D., 2017. Research design: Qualitative, quantitative, and mixed methods approaches. sixth edition ed. Sage publications.

[33] CRESWELL, J. W. 2014. Research design: Qualitative, Quantitative, and Mixed Methods approaches, 4th ed. Thousand Oaks, California: Sage Publications.

[34] CYPRESS, B.S., 2017. Rigor or reliability and validity in qualitative research: Perspectives, strategies, reconceptualization, and recommendations. *Dimensions of critical care nursing*, 36(4), pp. 253-263.

[35] DAZAGBYILO, Y., SHANG, S., EMMANUEL, O. AND KIR, K., 2021. Customer relationship management as a tool for improving customer loyalty in the banking industry: an empirical study of guaranty trust bank PLC situated within the Central Business District, FCT Abuja, Nigeria. *Open Journal of Business and Management*, 9(5), pp. 2299-2311.

[36] DELONE, W.H. and MCLEAN, E.R., 2003. The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems*, 19(4), pp. 9-30.

[37] DWIVEDI, Y., WASTELL, D., LAUMER, S., HENRIKSEN, H., MYERS, M., BUNKER, D., ELBANNA, A., RAVISHANKAR, M. AND SRIVASTAVA, S., 2015. Research on information systems failures and successes: Status update and future directions. *Information Systems Frontiers*, 17, pp. 143-157.

[38] DYBÅ, T., DINGSØYR, T. and MOE, N., 2014. Agile project management. *Software project management in a changing world*, , pp. 277-300.

[39] ELFIL, M. and NEGIDA, A., 2017. Sampling methods in clinical research; an educational review. *PubMed Central Journal*, 5(1), pp. 1-3.

[40] EKASARI, D.S., RAHARJO, T. and PRASETYO, A., 2021. Challenges and solution recommendation in large-scale agile implementation: A systematic

literature review. *2021 international conference on informatics, multimedia, cyber and information system (ICIMCIS.* 2021. IEEE, pp. 175-180.

[41] ETIKAN, I. and BALA, K., 2017. Sampling and sampling methods. *Biometrics & Biostatistics International Journal,* 5(6), pp.00149.

[42] FAGARASAN, C., POPA, O., PISLA, A. AND CRISTEA, C., 2021. Agile, waterfall and iterative approach in information technology projects. *IOP conference series: Materials science and engineering.* 2021. IOP Publishing, pp. 1-10.

[43] GERALDI, J. and LECHTER, T., 2012. Gantt charts revisited: A critical analysis of its roots and implications to the management of projects today. *International Journal of Managing Projects in Business,*

[44] GOERTZ, G. and MAHONEY, J., 2012. Concepts and measurement: Ontology and epistemology. *Social Science Information,* 51(2), pp. 205-216.

[45] GRAUE, C., 2015. Qualitative data analysis. *International Journal of Sales, Retailing & Marketing,* 4(9), pp. 5-14.

[46] HAQ, M., 2015. A Comparative Analysis of Qualitative and Quantitative Research Methods and a Justification for Adopting Mixed Methods in Social Research.

[47] HARALAYYA, B., 2021. Core banking technology and its top 6 implementation challenges. *Journal of Advanced Research in Operational and Marketing Management,* 4(1), pp. 25-27.

[48] IBITOMI, R.A.E., 2021. A framework for evaluating banking information systems in Nigeria. Unpublished dissertation/thesis, Cape Peninsula University of Technology.

[49] ISMAIL, D. and ARVIANSYAH, 2021. A systematic literature review and delphi study on agile software development challenges. *2021 6th international conference on management in emerging markets (ICMEM).* 2021. IEEE, pp. 1-6.

[50] JOSLIN, R. and MÜLLER, R., 2016. The impact of project methodologies on project success in different project environments. *International journal of managing projects in business,* 9(2), pp. 364-388.

[51] JOSLIN, R. and MÜLLER, R., 2015. Relationships between a project management methodology and project success in different project governance contexts. *International Journal of Project Management,* 33(6), pp. 1377-1392.

[52] JOVANOVIC, P. and BERIC, I., 2018. Analysis of the available project management methodologies. *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies,* 23(3), pp. 1-13.

[53] KASIANENKO, J., 2018. Convergense of agile and traditional methodologies in IT projects. *Advanced information systems and technologies. Proceedings of the The 5th International Scientific Conference* May 16-18 2018, pp. 48-51.

[54] KIV, S., HENG, S., KOLP, M. AND WAUTELET, Y., 2018. Agile manifesto and practices selection for tailoring software development: A systematic literature review. *Product-focused software process improvement: 19th international conference, PROFES 2018, Wolfsburg, Germany, November 28–30, 2018, proceedings 19.* 2018. Springer, pp. 12-30.

[55] KIVUNJA, C. and KUYINI, A., 2017. Understanding and applying research paradigms in educational contexts. *International Journal of higher education,* 6(5), pp. 26-41.

[56] KRISHNA, S.M. and VENKATAJAH, C.H., 2017. Project Management Methodology and Project Success. *RKG Journal of Management,* 8(2), pp. 81-87.

[57] KUPFER, A., 2018. Research methods in the information systems discipline: A literature analysis of conference papers. *24th American Conference on Information Systems, New Orleans.* 2018. pp. 1-10

[58] MARDIS, M., HOFFMAN, E. and RICH, P.J, 2014. Trends and issues in qualitative research methods. *Handbook of research on educational communications and technology,* pp. 173-193.

[59] MARNEWICK, C., ERASMUS, W. and NAZEER, J., 2017. The symbiosis between information system project complexity and information system project success. AOSIS.

[60] MATOOK, S. and VIDGEN, R., 2014. Harmonizing critical success factors in agile ISD projects. *20th Americas Conference on Information systems, AMCIS 2014.* 2014. Association for Information Systems Conference

[61] MÜLLER, R. and JUGDEV, K., 2012. Critical success factors in projects: Pinto, Slevin, and Prescott–the elucidation of project success. *International journal of managing projects in business,*

[62] MUNTEANU, V. and DRAGOS, P., 2021. The Case for Agile Methodologies against Traditional Ones in Financial Software Projects. *European Journal of Business and Management Research,* 6(1), pp. 134-141.

[63] NOTEBOOM, C., OFORI, M., SUTRAVE, K., AND EL-GAYAR, O., 2021. Agile project management: a systematic literature review of adoption drivers and critical success factors. *Proceedings of the 54th Hawaii International Conference on System Sciences.* 2021, pp. 6775-6783

[64] OGUNFUWA, I., 2018. Banks recorded 200,284 failed instant e-transactions on Monday. [online].Available from: https://punchng.com/banks-recorded-200284-failed-instant-e-transactions-on-monday/ [Accessed 9 April 2023].

[65] OHIANI, A.S., 2020. Technology innovation in the Nigerian banking system: prospects and challenges. *Rajagiri Management Journal,* 15(1), pp. 2-15.

[66] OLUDURO, O.F., 2015. History and evolution of banking in Nigeria. *Academia Arena,* 7(1), pp. 9-14.

[67] OSIFO, S.J. and OMOREGBE, O., 2020. Customer Relationship Management as a Tool for Improving Bank Performance and Nation Building. *Nigerian Academy of Management Journal,* 15(2), pp. 10-24.

[68] OYELAMI, L.O., ADEBIYI, S.O. and ADEKUNLE, B.S., 2020. Electronic payment adoption and consumers' spending growth: empirical evidence from Nigeria. *Future Business Journal,* 6, pp. 1-14.

[69] PACE, M., 2019. A correlational study on project management methodology and project success.

Journal of Engineering, Project, and Production Management, 9(2), pp. 56.

[70] PELLERIN, R. and PERRIER, N., 2019. A review of methods, techniques and tools for project planning and control. *International Journal of Production Research*, 57(7), pp. 2160-2178

[71] PATANAKUL, P. and RUFO-MCCARRON, R., 2018. Transitioning to agile software development: Lessons learned from a government-contracted program. *The Journal of High Technology Management Research*, 29(2), pp. 181-192.

[72] PRESS ASSOCIATION., 2014. Ministry of defence wasted millions on failed computer system. Available from: https://www.theguardian.com/uk-news/2014/jan/14/ministry-of-defence-failed-computer-system/. Accessed 9 March 2023]

[73] RASNACIS, A. and BERZISA, S., 2017. Method for adaptation and implementation of agile project management methodology. *Procedia Computer Science*, 104, pp. 43-50.

[74] SAUNDERS, M., LEWIS, P. and THORNHILL, A., 2019. *Research methods for business students.* Eight Edition ed. Pearson Education Publication

[75] SERRADOR, P. and PINTO, J.K., 2015. Does Agile work? —A quantitative analysis of agile project success. *International Journal of Project Management*, 33(5), pp. 1040-1051.

[76] SHARMA, S. and HASTEER, N., 2016. A comprehensive study on state of scrum development. *2016 international conference on computing, communication and automation (ICCCA)*. 2016. IEEE, pp. 867-872.

[77] SIRISILLA, S., 2022. *Effective Use of Statistics in Research – Methods and Tools for Data Analysis.* [online]. Available from: https://www.enago.com/academy/statistics-in-research-data-analysis/ [Accessed 20 April 2023].

[78] SPALEK, S., 2016. Traditional vs. modern project management methods. theory and practice. *Smart and efficient economy: Preparation for the future innovative economy, 21st international scientific conference*. 2016, pp. 499-506.

[79] ŠPUNDAK, M., 2014. Mixed agile/traditional project management methodology–reality or illusion? *Procedia-Social and Behavioral Sciences*, 119, pp. 939-948.

[80] STANDISH GROUP, 2015. *CHAOS Report 2015.* Available from: https://www.standishgroup.com/sample_research_files/CHAOSReport2015-Final.pdf [Accessed 21 March 2023].

[81] SYAL, R., 2013. Abandoned NHS IT system has cost £10bn so far. Available from: https://www.theguardian.com/society/2013/sep/18/nhs-records-system-10bn [Accessed 16 March 2023]

[82] SYED, M., 2016. Basic guidelines for research*:* An introductory approach for all disciplines. Chittagong-4203, Bangladesh: Book Zone Publication,

[83] TAM, C., DACOSTA M., EDUARDO J., OLIVEIRA, T. AND VARAJÃO, J., 2020. The factors influencing the success of on-going agile software development projects. *International Journal of Project Management*, 38(3), pp. 165-176.

[84] THESING, T., FELDMANN, C. and BURCHARDT, M., 2021. Agile versus waterfall project management: decision model for selecting the appropriate approach to a project. *Procedia Computer Science*, 181, pp. 746-756.

[85] THOMAS, G., 2022. How to do your research project: A guide for students. *How to Do Your Research Project*, pp. 1-100.

[86] TYRER, S. and HEYMAN, B., 2016. Sampling in epidemiological research: issues, hazards and pitfalls. *BJPsych Bulletin*, 40(2), pp. 57-60.

[87] UKPABIO, M.G., OLAPOSI, T. and SIYANBOLA, W.O., 2016. Technology acquisition and technology learning in banking industry: Lessons from Nigerian banking sector. *African journal of business management*, 10(20), pp. 511-521.

[88] UNEGBU, V.E., IKONNE, C.N. and ABIA, E.S., 2016. Influence of Information Systems Use on Organizational Performance of First Bank PLC, Nigeria. *Library and Information Science Digest*, 9(1), pp. 12-17.

[89] VAN CASTEREN, W., 2017. The Waterfall Model and the Agile Methodologies: A comparison by project characteristics. *Research Gate*, 2, pp. 1-6.

[90] WAFA, R., KHAN, M., MALIK, F., ABDUSALOMOV, A., CHO, Y. AND ODARCHENKO, R., 2022. The Impact of Agile Methodology on Project Success, with a Moderating Role of Person's Job Fit in the IT Industry of Pakistan. *Applied Sciences*, 12(21), pp. 10698.

[91] WELLS, H., 2012. How effective are project management methodologies? An explorative evaluation of their benefits in practice. *Project Management Journal*, 43(6), pp. 43-58.

[92] YOHANNES, A. and MAURITSIUS, T., 2022. Critical Success Factors in Information Technology Projects. *International Journal of Emerging Technology and Advanced Engineering*, 12(7), pp. 45-67.

[93] ZAMAWE, F., 2015. The implication of using NVivo software in qualitative data analysis: Evidence-based reflections. *Malawi Medical Journal*, 27(1), pp. 13-15.