# DETERMINANTS OF KNOWLEDGE TRANSFER IMPLEMENTATION FOR INFORMATION TECHNOLOGY PROJECT MANAGERS

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# Abstrak

Dalam era kemajuan teknologi yang kian pesat, peranan projek teknologi maklumat (ITP) sebagai pemangkin utama kepada daya saing organisasi telah menjadi semakin penting merentasi pelbagai sektor. Namun demikian, di sebalik pergantungan yang semakin meningkat terhadap ITP, kadar kegagalan projek masih tinggi di peringkat global, dengan amalan pemindahan pengetahuan (KT) yang tidak berkesan dikenal pasti sebagai faktor penyumbang yang signifikan. Kajian sedia ada mengenai KT dalam konteks ITP kebanyakannya menumpukan pada tingkah laku ahli pasukan projek, sekali gus mengabaikan peranan pengurus projek teknologi maklumat (ITPM) dalam memastikan keberkesanan amalan KT. Secara khususnya, masih terdapat kekurangan kajian empirikal yang membangunkan dan mengesahkan model komprehensif yang menangani penentu amalan KT khusus kepada ITPM, terutamanya di negara-negara membangun. Kajian ini bertujuan untuk menangani jurang tersebut dengan mengkaji faktor-faktor yang mempengaruhi pelaksanaan amalan KT dalam kalangan ITPM di organisasi ITP di Nigeria. Satu model konseptual bersepadu telah dibangunkan dengan menggabungkan Teori Kognitif Sosial (SCT), Teori Penyebaran Inovasi (DOI), dan model Sosialisasi, Eksternalisasi, Kombinasi, dan Internalisasi (SECI). Reka bentuk kajian kuantitatif telah digunakan, dan data dikumpul melalui soal selidik yang diedarkan kepada 389 orang ITPM, di mana 286 salinan dianggap sah untuk analisis data. Data tersebut telah dianalisis menggunakan kaedah *Pemodelan Persamaan Struktur Kuasa Dua Terkecil* (PLS-SEM). Dapatan kajian menunjukkan bahawa beberapa faktor signifikan mempengaruhi tingkah laku KT dalam kalangan ITPM, termasuk kepercayaan untuk berkongsi, gaya kepimpinan, sistem ganjaran, komunikasi, infrastruktur IT, alatan kolaborasi projek, kebimbangan keselamatan, dan keserasian teknologi. Selain itu, sokongan pihak pengurusan atasan didapati mempunyai kesan pengantara yang signifikan terhadap hubungan antara motivasi dan tingkah laku KT, serta antara infrastruktur IT dan tingkah laku KT. Kajian ini mengembangkan literatur KT dengan mengenal pasti penentu KT dalam kalangan ITPM dan mengesahkan model bersepadu yang disesuaikan dengan konteks ekonomi yang sedang pesat membangun. Ia memberikan panduan praktikal kepada pihak berkepentingan dalam projek IT, termasuk pembuat dasar, pemimpin organisasi, dan pengurus projek, untuk merangka strategi yang menyokong pelaksanaan amalan KT serta mempertingkatkan tingkah laku KT dalam kalangan ITPM yang menjamin kejayaan sesebuah projek.

**Kata Kunci:** *Amalan Pemindahan Pengetahuan, Pengurus Projek, Projek Teknologi Maklumat.*

# Abstract

In this era of rapid technological advancement, information technology projects (ITPs) have become increasingly vital across different sectors, serving as key enablers of organizational competitiveness. However, despite the growing reliance on ITPs, high failure rates persist globally, with ineffective knowledge transfer (KT) practices identified as a significant contributing factor. Existing research on KT within ITP contexts has predominantly emphasized the behaviors of project team members, thereby overlooking the role of information technology project managers (ITPMs) in facilitating successful KT practices.Notably, there remains a paucity of empirical studies that develop and validate comprehensive models addressing the determinants of KT practices for ITPMs, particularly within developing countries. This study seeks to address this gap by investigating the factors influencing the implementation of KT practices among ITPMs in Nigerian ITP organizations. An integrated conceptual model was developed by synthesizing insights from Social Cognitive Theory (SCT), Diffusion of Innovation (DOI) theory, and the Socialization, Externalization, Combination, and Internalization (SECI) model. A quantitative research design was adopted, and data were collected through a survey questionnaire administered to 389 ITPMs, of which 286 copies were considered valid for data analysis. The data was analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings reveal that several factors significantly influence KT behavior among ITPMs, including trust to share, leadership style, reward system, communication, IT infrastructure, project task collaboration tools, security concerns, and technological compatibility. Furthermore, top management support was found to significantly moderate the relationships between motivation and KT behavior, as well as between IT infrastructure and KT behavior. This study extends the KT literature by identifying KT determinants for ITPMs and validating an integrated model tailored to the context of emerging economies. It provides actionable insights for IT project stakeholders, including policymakers, organizational leaders, and project managers, to devise strategies that promote the implementation of KT practices and improve the KT behavior of ITPMs for project success.



**Keywords:** *Knowledge Transfer Practice, Project Manager, Information Technology Project.*

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# List of Abbreviations

| | |
|---|---|
| ABU | Ahmadu Bello University |
| ATBU | Abubakar Tafawa Balewa University |
| AUK | Al-Qalam University Katsina |
| AUST | African University for Science and Technology |
| AVE | Average Variance Extract |
| AVE | Averaging Method |
| CB-SEM | Covariance Based Structural Equation Modelling |
| CFA | Confirmatory Factor Analysis |
| CMB | Common Method Bias |
| COM | Communication |
| COMP | Compatibility |
| CR | Composite Reliability |
| CU | Culture |
| CVI | Content Validity Index |
| DOI | Diffusion of Innovation |
| EFA | Exploratory Factor Analysis |
| EOV | Equality of Variances |
| $f^2$ | Effect Size (R-Square) |
| ICT | Information and Communication Technology |
| i-CVI | Item Content Validity Index |
| IS | Information System |
| IT | Information Technology |
| ITINF | Information Technology Infrastructure |
| ITP | Information Technology Project |
| ITPM | Information Technology Project Manager |
| KM | Knowledge Management |
| KT | Knowledge Transfer |
| KTB | Knowledge Transfer Behavior |
| LS | Leadership Style |
| MTV | Motivation |

| | |
|---|---|
| MV | Moderating Variable |
| N | Number of population |
| NITDA | Nigerian Information Technology Development Agency |
| nx | Total number of agreements among the expert |
| ny | Total number of experts who participated in content validation |
| nz | Total number of items in each construct |
| β | Path Coefficient |
| PLS-SEM | Partial Least Squares Structural Equation Modeling |
| PTC | Project Task Collaboration Tool |
| $q^2$ | Effect Size (Q-Square) |
| $Q^2$ | Predictive Relevance |
| $R^2$ | Coefficient of Determination |
| RA | Relative Advantage |
| RBV | Resource Based View |
| RS | Reward System |
| SC | Security Concern |
| SCT | Social Cognitive Theory |
| SDP | Software Development Project |
| s-CVI | Score Content Validity Index |
| SECI | Socialization Externalization Combination and Internalization |
| SET | Social Exchange Theory |
| SLR | Systematic Literature Review |
| SPSS | Statistical Package for Social Science |
| TMS | Top Management Support |
| TRA | Theory of Reasoned Action |
| TRS | Trust to Share |
| TU | Time Urgency |
| UA | Universal Agreement |
| USA | United State of America |
| VIF | Variance Inflation Factor |
| α | Cronbach's Alpha |
| HTMT | Heterotrait Monotrait Ratio |

# CHAPTER ONE
# INTRODUCTION

## 1.1 Overview

This chapter includes the background of the study, research questions, objectives, and problem statements. It also focuses on the rationale behind the study, identifying gaps in existing research, and formulating research questions based on them. Additionally, the chapter explains the extent and limitations of the anticipated contributions and provides a summary.

## 1.2 Background of Study

As the knowledge economy has emerged, project organizations have come to recognize the significance of knowledge resources in improving their fundamental competitiveness and ability to innovate (Lindblom & Martins, 2022; Davenport & Prusak, 1998). This contemporary phase of technological evolution heavily depends on various components of Information and Communication Technology (ICT), and one essential component is Information Technology Projects (ITPs) (Ayentimi & Burgess, 2019; Jones & Pimdee, 2017).

This technological evolution has led to a significant number of ITPs being conducted by different organizations spanning various sectors such as; healthcare, education, finance, and many other sectors (Mtsweni & Gorejena, 2023). The primary objective behind executing ITPs is to develop technological solutions that empower organizations to compete in this era (Mtsweni & Gorejena, 2023). Technology

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# Appendix A

## Survey Questionnaire

Questionnaire No: _____

SCHOOL OF COMPUTING
*Pusat Pengajian Pengkomputeran*
UNIVERSITI UTARA MALAYSIA

**SURVEY QUESTIONNAIRE**

***Research Title: "Determinants of Tacit Knowledge Transfer Implementation for Information Technology Project Managers in Nigeria"***

Dear Sir/Madam,

My name is Ismail Bello, a postgraduate student at School of Computing, College of Arts and Sciences, Universiti Utara Malaysia, conducting research on the topic mentioned above. Attached herewith, self-explanatory questions that will take a little much of your time to answer. Before proceeding, please familiarize yourself with our definitions of "Information Technology Project Organization," "Information Technology (IT) Project Managers," and "Knowledge Transfer (KT)".

***Definition of Terms***

| |
|---|
| **IT Project Organization**– An environment or organization comprising individuals such as programmers, software developers, and other IT enthusiasts working together to achieve project success. It serves as an environment for connecting, building, and sharing knowledge to facilitate project success. |
| **IT Project Manager**– An individual whose ideas, opinions, knowledge, skills, or characteristics motivate team members and significantly influence project success. The IT project manager serves as a guide, coordinating project activities to achieve expected outcomes. |
| **Knowledge Transfer**– The transmission of skills, expertise, and experiences acquired by an individual to team members. This form of knowledge transfer often occurs from one individual to a group and can take place through face-to-face communication or virtual collaboration tools. |

All responses will remain anonymous and strictly confidential. Your cooperation and willingness to participate in this survey are greatly appreciated. For any inquiries regarding the study, please feel free to contact me at 07039162687 or via email at esmailbello@gmail.com.

***"Your willingness to participate in this research survey is highly appreciated."***
***Thank You.***

**Section A:** *[please tick in the appropriate box]*

Demographic Profile

1. [Lucky Draw Prize]
   - Please provide your email address if you wish to be contacted for prize delivery.
     - *Email:* _____ *[optional]*

2. What is your gender
   - Male [ ]
   - Female [ ]

3. Have you previously participated in any IT projects?
   - Yes [ ]
   - No [ ]

4. How many years have you worked as an IT professional?
   - Less than 5 year [ ]
   - 5 to 10 years [ ]
   - Above 10 [ ]

5. How frequently are you involved in IT projects?
   - Weekly [ ]
   - Monthly [ ]
   - Rarely [ ]
   - Never [ ]

6. What is your role in the IT project organization?
   - Intermediate/Team Member [ ]
   - Project Manager/Expert/Team Leader [ ]
   - Top/Senior Management [ ]

7. What is your age group?
   - 20 – 30 years [ ]
   - 31 – 40 years [ ]
   - 41 – 50 years [ ]
   - Above 50 years [ ]

8. What is your highest level of education attained?
   - First Leaving School Certificate [ ]
   - Diploma [ ]
   - Bachelor's Degree [ ]
   - Master's Degree [ ]
   - Doctor of Philosophy [ ]

## Section B

This section focuses on knowledge transfer (KT) practices in IT project organizations. It addresses the determinants of KT for IT project managers representing each dimension.

Please rate your level of the agreement with the following statements based on a 5-point interval scale below by circling accordingly.

| Strongly Disagree | _____to_____ | Strongly Agree |
|---|---|---|
| 1 | | 5 |

| Knowledge Transfer | | | | | |
|---|---|---|---|---|---|
| Statements | Scale | | | | |
| 1. I frequently share my knowledge with others. | 1 | 2 | 3 | 4 | 5 |
| 2. I regularly tell others about what I am doing. | 1 | 2 | 3 | 4 | 5 |
| 3. I know what the others are doing. | 1 | 2 | 3 | 4 | 5 |
| 4. I immediately tell others about it, when I learn something new. | 1 | 2 | 3 | 4 | 5 |

### I. Personal factors

| Motivation | | | | | |
|---|---|---|---|---|---|
| Statements | Scale | | | | |
| 5. I am willing to share my knowledge because it can enhance my reputation. | 1 | 2 | 3 | 4 | 5 |
| 6. I think that sharing my knowledge makes my colleagues better aware of my skills. | 1 | 2 | 3 | 4 | 5 |
| 7. I consider that my organization recognizes/values those who share knowledge. | 1 | 2 | 3 | 4 | 5 |
| 8. I consider that my organization provides its members with a fair evaluation/reward for sharing knowledge. | 1 | 2 | 3 | 4 | 5 |
| 9. I think that sharing knowledge has a direct impact on the progression of my career. | 1 | 2 | 3 | 4 | 5 |

| Trust | | | | | |
|---|---|---|---|---|---|
| Statement | Scale | | | | |
| 10. All members are honest and sincere dealing with me about my knowledge. | 1 | 2 | 3 | 4 | 5 |
| 11. Nobody takes advantage of my knowledge. | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| 12. All members deal constructively and carefully with my information. | **1** | **2** | **3** | **4** | **5** |
| 13. The information I receive is accurate at all times. | **1** | **2** | **3** | **4** | **5** |
| 14. All members always keep their promises to me. | **1** | **2** | **3** | **4** | **5** |

| **Time Urgency** | | | | | |
|---|---|---|---|---|---|
| Statements | **Scale** | | | | |
| 15. Time is often sufficient during project. | **1** | **2** | **3** | **4** | **5** |
| 16. Project teams are generally under time pressure. | **1** | **2** | **3** | **4** | **5** |
| 17. The project schedule is frequently checked by clients. | **1** | **2** | **3** | **4** | **5** |
| 18. Project teams have little time for inter-project knowledge exchange. | **1** | **2** | **3** | **4** | **5** |

## II. Project organizational factors

| **Leadership Style** | | | | | |
|---|---|---|---|---|---|
| Statements | **Scale** | | | | |
| 19. Our organization's leadership let me know what is expected of them. | **1** | **2** | **3** | **4** | **5** |
| 20. Our organization's leadership informs me about what needs to be done and how it needs to be done. | **1** | **2** | **3** | **4** | **5** |
| 21. Our organization's leadership asks me to follow standard rules and regulations. | **1** | **2** | **3** | **4** | **5** |
| 22. Our organization's leadership explains the level of performance that is expected of me. | **1** | **2** | **3** | **4** | **5** |
| 23. Our organization's leadership gives vague explanations of what is expected of me on the job. | **1** | **2** | **3** | **4** | **5** |

| **Reward System** | | | | | |
|---|---|---|---|---|---|
| Statements | **Scale** | | | | |
| 24. I receive monetary rewards when I share my knowledge. | **1** | **2** | **3** | **4** | **5** |
| 25. I receive additional points for promotion when I share my knowledge. | **1** | **2** | **3** | **4** | **5** |
| 26. I receive respect from others when I share my knowledge. | **1** | **2** | **3** | **4** | **5** |
| 27. I am praised by superiors for sharing my knowledge. | **1** | **2** | **3** | **4** | **5** |

| Shared Culture | | | | | |
|---|---|---|---|---|---|
| Statement | Scale | | | | |
| 28. The atmosphere in my organization is tolerant and open. | **1** | **2** | **3** | **4** | **5** |
| 29. Inter-project and cross-functional information exchange are encouraged in my organization. | **1** | **2** | **3** | **4** | **5** |
| 30. Sharing knowledge among employees is advocated in my organization. | **1** | **2** | **3** | **4** | **5** |
| 31. Top managers pay attention to knowledge sharing in my organization. | **1** | **2** | **3** | **4** | **5** |

| Communication | | | | | |
|---|---|---|---|---|---|
| Statements | Scale | | | | |
| 32. My project team and I often keep each other fully informed about project issues during communication. | **1** | **2** | **3** | **4** | **5** |
| 33. My project team and I often discuss project issues candidly with each other. | **1** | **2** | **3** | **4** | **5** |
| 34. My project team and I often communicate with each other through formal or informal channels. | **1** | **2** | **3** | **4** | **5** |
| 35. My project team and I often communicate efficiently and with each other in depth. | **1** | **2** | **3** | **4** | **5** |

**III. Technological factors**

| IT Infrastructure | | | | | |
|---|---|---|---|---|---|
| Statements | Scale | | | | |
| 36. Remote team members do not have to perform any additional steps or procedures to access data from home or central office. | **1** | **2** | **3** | **4** | **5** |
| 37. Team members throughout the organization utilize a common operating system (e.g., Linux, Microsoft Windows, MacOS or Ubuntu). | **1** | **2** | **3** | **4** | **5** |
| 38. Software applications can be easily used or transported across multiple platforms. | **1** | **2** | **3** | **4** | **5** |
| 39. My organization's user interfaces provide transparent access to all platforms and applications. | **1** | **2** | **3** | **4** | **5** |
| 40. My organization provides multiple interfaces or entry points (e.g., Web access) for team members. | **1** | **2** | **3** | **4** | **5** |
| 41. The rapidity of IT change (e.g., revision level, release) in our organization is high. | **1** | **2** | **3** | **4** | **5** |

| Project Task Collaboration Tool | | | | | |
|---|---|---|---|---|---|
| Statements | **Scale** | | | | |
| 42. My project teams and I share knowledge through email e.g. Gmail, Yahoo mail. | **1** | **2** | **3** | **4** | **5** |
| 43. My project teams and I connect with each other through an online meeting platform e.g. Zoom, Google meet, or Microsoft teams. | **1** | **2** | **3** | **4** | **5** |
| 44. My project teams and I collaborate through an enterprise information system e.g. Microsoft SharePoint, Google Collab, Enterprise Resource Planning. | **1** | **2** | **3** | **4** | **5** |
| 45. My project teams and I connect with each other through direct phone calls. | **1** | **2** | **3** | **4** | **5** |

| Security Concern | | | | | |
|---|---|---|---|---|---|
| Statements | **Scale** | | | | |
| 46. My organization helps in the secure storage of my data. | **1** | **2** | **3** | **4** | **5** |
| 47. My organization ensures data protection so that it cannot be manipulated by hackers outside the organization. | **1** | **2** | **3** | **4** | **5** |
| 48. My organization also ensures protection of usage of official data by team members for their personal benefit. | **1** | **2** | **3** | **4** | **5** |

| Relative Advantage | | | | | |
|---|---|---|---|---|---|
| Statements | **Scale** | | | | |
| 49. The knowledge transfer system in the organization helps with better coordination and communication. | **1** | **2** | **3** | **4** | **5** |
| 50. The knowledge transfer system in the organization enhances my performance. | **1** | **2** | **3** | **4** | **5** |
| 51. The knowledge transfer system in the organization provides flexibility. | **1** | **2** | **3** | **4** | **5** |
| 52. The knowledge transfer system in the organization enhances learning and sharing. | **1** | **2** | **3** | **4** | **5** |
| 53. The knowledge transfer system in the organization is useful and I believe that it will increase productivity. | **1** | **2** | **3** | **4** | **5** |

| Compatibility | | | | | |
|---|---|---|---|---|---|
| Statements | **Scale** | | | | |
| 54. The knowledge transfer system in the organization provides a seamless interface with the other legacy applications. | **1** | **2** | **3** | **4** | **5** |
| 55. The knowledge transfer system in the organization provides relevant and required application support. | **1** | **2** | **3** | **4** | **5** |
| 56. The knowledge transfer system in the organization faced no problems of system unexpected behavioral issues. | **1** | **2** | **3** | **4** | **5** |

| Top Management Support | | | | | |
|---|---|---|---|---|---|
| Statements | Scale | | | | |
| 57. In my organization, top management think that encouraging project knowledge sharing with colleagues is beneficial during IT project implementation. | **1** | **2** | **3** | **4** | **5** |
| 58. In my organization, top management supports and encourages employees to share their project-related knowledge with colleagues during project implementation. | **1** | **2** | **3** | **4** | **5** |
| 59. In my organization, top management provides most of the necessary help and resources to enable employees to share project knowledge during the project implementation. | **1** | **2** | **3** | **4** | **5** |
| 60. In my organization, top management are keen to see that employees are happy to share their project-related knowledge with colleagues during project implementation. | **1** | **2** | **3** | **4** | **5** |

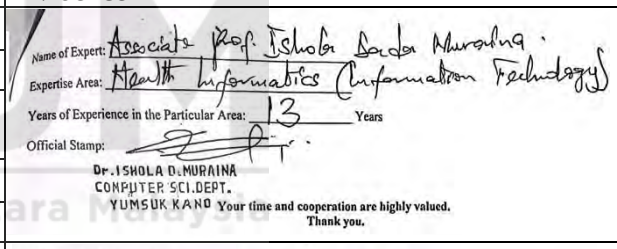
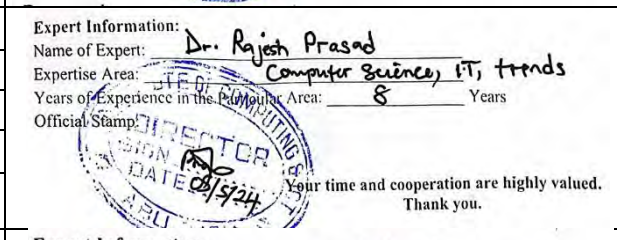
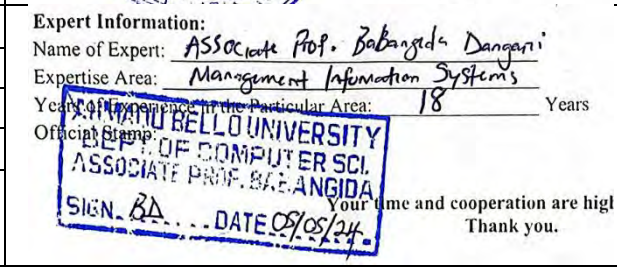
**Your time and cooperation are highly valued.**
**Thank you.**

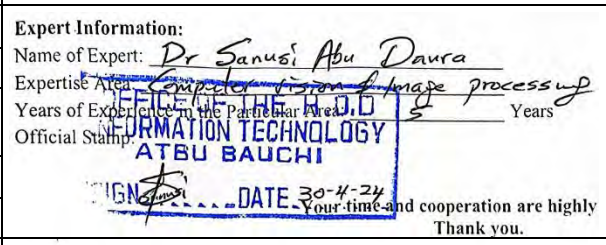
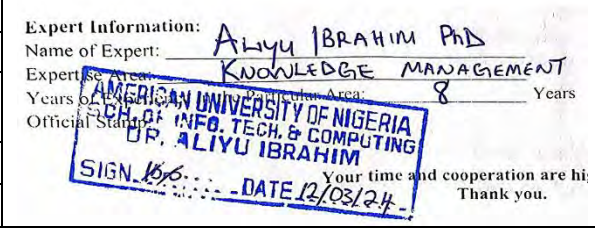
Best regards,
*Ismail Bello*
*PhD candidate,*
*School of Computing (SOC), College of Arts and Sciences (CAS),*
*University Utara Malaysia (UUM), 06010 Sintok, Kedah, Malaysia.*
*+2347039162687*, +0143222348, esmailbello@gmail.com

# Appendix B

## Preliminary Analysis and Factors Confirmation

The preliminary analysis and factor confirmation were conducted in two phases to ensure the research instrument's accuracy and relevance. The first phase involved an expert review and validation of factors. Experts assessed the practical relevance, clarity, and applicability of the identified factors influencing KT practices. The second phase focused on instrument validity with evaluations conducted by academic experts from Nigerian universities. The approach ensured that the questionnaire was rigorously tested and refined, making it a robust tool for data collection in the study.

| Expert Information | Evidence |
|---|---|
| Expert 1. Face Validity<br>Name: Associate Prof Ishola . Ishola D. Muraina<br>Department: Computer Science Department YUMSUK Kano<br>Years of Experience: 13 years<br>Expertise Area: Information Technology |  |
| Expert 2. Content Validity<br>Name: Dr. Yahaya Ishah Shehu<br>Department: Computer Science ABU Zaria<br>Years of Experience: 10<br>Expertise Area: Information Technology and Software Development |  |
| Expert 3. Content Validity<br>Name: Dr. Rajesh Prasad<br>Department: Computer Science ABU Zaria<br>Years of Experience: 8<br>Expertise Area: Computer Science, and IT trends |  |
| Expert 4. Content Validity<br>Name: Associate Prof. Babangida Dangani<br>Department: Computer Science ABU Zaria<br>Years of Experience: 18 years<br>Expertise Area: Management Information Systems |  |

| Expert Information | Evidence |
|---|---|
| Expert 5. Content Validity |  |
| Name: Dr. Sanusi Abu Daura | |
| Department: Information Technology ATBU Bauchi | |
| Years of Experience: 5 | |
| Expertise: Computer Vision and Image Processing | |
| Expert 6. Content Validity |  |
| Name: Dr. Aliyu Ibrahim | |
| Department: School of Information Technology and Computing | |
| Years of Experience: 8 | |
| Expertise Area: Knowledge Management | |

# Appendix C

# Preliminary Study and Factors Confirmation

Date: _____

SCHOOL OF COMPUTING
*Pusat Pengajian Pengkomputeran*
UNIVERSITI UTARA MALAYSIA

**EXPERT REVIEW AND VALIDATION**
**Preliminary Study and Expert Confirmation of Factors**

***Research Title: "Determinants of Tacit Knowledge Transfer Implementation for Information Technology Project Managers in Nigeria"***

Dear Expert,

This questionnaire consists of Sections A, B, C and D.

- For **Section A** (General Information of Expert), **Section B** (General Questions) and **Section D** (Open-Ended Questions).
- For **Section C** (13 Statements), the statements describe the extent to which the listed factors influence Information technology (IT) project managers to implement tacit knowledge transfer (KT) practices. Please rate the level of relevance of the following factor based on a 5-point interval scale below.

| Not Relevant | _____to_____ | Highly Relevant |
|---|---|---|
| 1 | | 5 |

***"Your willingness to review and validate the factors in this questionnaire is highly appreciated."***
***Thank You.***

| Section A: General Information of Expert |
| --- |
| 1. **Name:** _____ |
| 2. **Position Held:**<br>_____ |
| 3. **Organization:**<br>_____ |
| 4. **Current Responsibility:**<br>_____ |
| 5. **Experience in the current responsibilities:** **Years** |
| 6. **Experience in IT projects:** **Years** |
| 7. **Experience as an IT Project Manager:** **Years** |

**Section B**

The main objective of this section is to identify the determinants and develop a Tacit Knowledge Transfer implementation framework for IT project Managers (refer to Figure 1 proposed framework below). Please rate the level of relevance with the following factors based on the 5-point interval scale below by circling accordingly.

| **Not Relevant** | _____to_____ | **Highly Relevant** |
|---|---|---|
| **1** | | **5** |

| **General Questions** | **Expert Rating** | | | | |
|---|---|---|---|---|---|
| 1. Do you think implementing tacit knowledge transfer (KT) for IT project managers will reduce IT project failures? | **1** | **2** | **3** | **4** | **5** |
| 2. Do you think technological factors are important factors that influence IT project managers' tacit knowledge transfer behaviour? | **1** | **2** | **3** | **4** | **5** |
| 3. Do you think Top Management can improve IT project managers' tacit KT behavior? | **1** | **2** | **3** | **4** | **5** |

**Section C: Determinants of Tacit Knowledge Transfer Implementation for IT Project Managers**

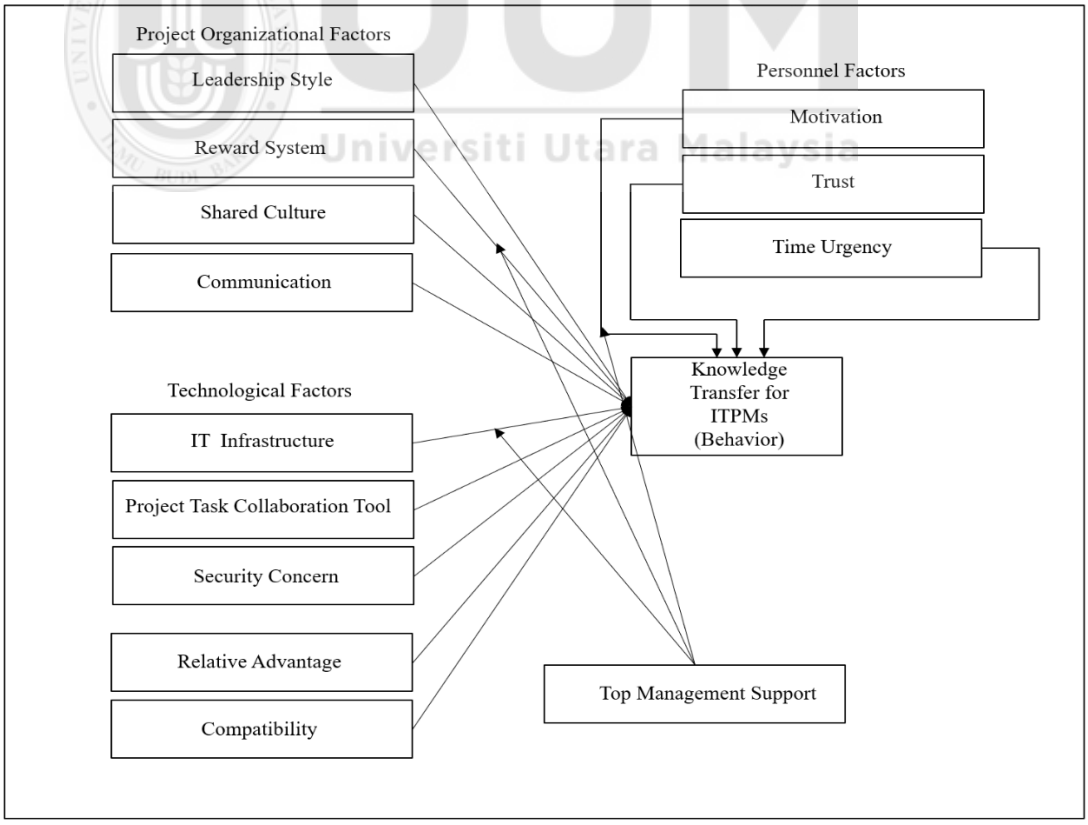



Figure 1: Proposed Conceptual Framework

The following statements describe how the listed determinants influence Tacit Knowledge Transfer Implementation for IT Project Managers. Please rate the level of relevance with the following factors based on the 5-point interval scale below by circling accordingly.

| **Determinants of Tacit Knowledge Transfer Implementation for IT Project Managers** | **Expert Rating** | | | | |
|---|---|---|---|---|---|
| 1. **Motivation** is the internal driving force that influences the willingness and commitment of an individual to engage in knowledge transfer (KT) practices. | **1** | **2** | **3** | **4** | **5** |
| 2. **Trust** is the willingness of an individual to share knowledge, communicate openly, and collaborate effectively with others, knowing that their contributions and interests will be respected and valued. | **1** | **2** | **3** | **4** | **5** |
| 3. **Time Urgency** is the subjective perception of time constraints and the extent to which an individual feels compelled to prioritize and expedite their work activities to adhere to project schedules and timelines | **1** | **2** | **3** | **4** | **5** |
| 4. **Leadership Style** is the manner and approach through which leaders within IT project organization (ITPO) influence and guide their teams towards achieving project objectives and goals. | **1** | **2** | **3** | **4** | **5** |
| 5. **Reward System** is the mechanisms and practices employed to recognize, acknowledge, and reinforce desired behaviors and outcomes among individuals involved in KT activities. | **1** | **2** | **3** | **4** | **5** |
| 6. **Shared Culture** refers to the collective values, beliefs, norms, and behavioural patterns that are widely accepted and practised within the ITPO. | **1** | **2** | **3** | **4** | **5** |
| 7. **Communication** is the process by which information, ideas, and knowledge are exchanged within the ITPO. | **1** | **2** | **3** | **4** | **5** |
| 8. **IT Infrastructure is** the physical components such as servers, computers, and networking devices, as well as the software applications, databases, and platforms used for project development, implementation, and management. | **1** | **2** | **3** | **4** | **5** |
| 9. **Project Task Collaboration Tool** is the digital platforms and software applications specifically designed to facilitate collaborative work between individuals involved in IT projects. | **1** | **2** | **3** | **4** | **5** |
| 10. **Security Concern** is the potential vulnerabilities and threats to data confidentiality, integrity, and availability that the ITPO must address to safeguard project-related information and communication. | **1** | **2** | **3** | **4** | **5** |
| 11. **Relative Advantage** is the perceived superiority or benefit an individual perceives for adopting and implementing KT practices and technological solutions compared to existing methods or alternative approaches within the ITPO. | **1** | **2** | **3** | **4** | **5** |
| 12. **Compatibility** is the extent to which the KT initiatives and technological tools can seamlessly align and integrate with the current workflows, systems, and practices prevalent in ITPO without causing disruptions or conflicts. | **1** | **2** | **3** | **4** | **5** |
| 13. **Top Management Support** is the extent of commitment, involvement, and backing provided by senior leadership within the ITPO towards KT initiatives. | **1** | **2** | **3** | **4** | **5** |

**Section D**

**Suggestions or comments regarding the determinants of Tacit KT implementation for IT project managers?**

If so, kindly write in the space provided.

_____
_____
_____

Name of Expert: _____

Expertise Area: _____

Years of Experience in the Particular Area: _____ Years

Official Stamp:

**Your time and cooperation are highly valued.**
**Thank you.**

Best regards,
*Ismail Bello*
*PhD candidate,*
*School of Computing (SOC), College of Arts and Sciences (CAS),*
*University Utara Malaysia (UUM), 06010 Sintok, Kedah, Malaysia.*
*+2347039162687,* +0143222348, esmailbello@gmail.com

# Appendix D

# Questionnaire (Item Validation)

Date: _____

SCHOOL OF COMPUTING
*Pusat Pengajian Pengkomputeran*
UNIVERSITI UTARA MALAYSIA

**INSTRUMENT VALIDATION**
**Content Validity Index (CVI)**

***Research Title: "Determinants of Tacit Knowledge Transfer Implementation for Information Technology Project Managers in Nigeria"***

Dear Expert,

My name is Ismail Bello, a postgraduate student at School of Computing, College of Arts and Sciences, Universiti Utara Malaysia, conducting research on the topic mentioned above. Attached herewith, self-explanatory questions that will take a little much of your time to answer. Before proceeding, please familiarize yourself with our definitions of "Information Technology Project Organization," "Information Technology (IT) Project Managers," and "Knowledge Transfer (KT)".

***Definition of Terms***

| |
|---|
| **IT Project Organization**– An environment or organization comprising individuals such as programmers, software developers, and other IT enthusiasts working together to achieve project success. It serves as an environment for connecting, building, and sharing knowledge to facilitate project success. |
| **IT Project Manager**– An individual whose ideas, opinions, knowledge, skills, or characteristics motivate team members and significantly influence project success. The IT project manager serves as a guide, coordinating project activities to achieve expected outcomes. |
| **Knowledge Transfer**– The transmission of skills, expertise, and experiences acquired by an individual to team members. This form of knowledge transfer often occurs from one individual to a group and can take place through face-to-face communication or virtual collaboration tools. |

This questionnaire consists of Section A, B, C and D.

- For the **Section A** (Demographic Questions) and **Section C** (Open Ended Questions), please comment in the "**Remarks**" section for each question.
- For the **Section B** (60 Questions), please rate the level of agreement of the following questionnaire items based on the 4-point interval scale below by circling accordingly.

***"Your willingness to validate the content of this questionnaire is highly appreciated."***
***Thank You.***

| Section A: Personal Information | Remarks |
|---|---|
| 1. **Lucky Draw Prize:** [please insert your email address if you wish to be contacted for prize delivery.<br>*Email:* _____<br>*[optional]* | |
| 2. **Age:**<br>20 – 30 years [□] 31 – 40 years [□]<br>41 - 50 years [□] 51 - 60 years [□]<br>Above 60 years [□] | |
| 3. **Gender:** 1. Female ○ 2. Male ○ | |
| 4. **Information Technology (IT) professional Experience:**<br>≤ 1 Year ○ 2-4 Years ○ 5-7 Years ○<br>8-10 Years ○ 11-13 Years ○ ≥ 14 Years ○ | |
| 5. **Role held as an IT professional:**<br>Top/Senior Manager ○ Project Manager/Team Leader ○<br>Team member/Intermediate ○ | |
| 6. **Frequency of involvement in IT projects:**<br>Rarely ○ Daily ○ More than once a week ○<br>More than once a month ○ More than once a year ○ | |
| 7. **Your highest education attained?**<br>_____<br>_____ | |
| 8. **** Experience as an IT project manager:**<br>None ○ } **** Go to Section D**<br>≤ 1 Years ○ 2 Years ○<br>3 Years ○ 4 Years ○<br>5 Years ○ ≥ 5 Years ○ **** Go to Section B, and then proceed to Section C.** | |

**Section B**

Please rate the relevancy of the following questionnaire items based on the 4-point interval scale below by circling accordingly. Use the "**Remarks**" field to give and comment.

| **Strongly Disagree** | _____to_____ | **Strongly Agree** |
|---|---|---|
| **1** | | **4** |

| **0.0 – Knowledge Transfer Behavior** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 0a. I frequently share my knowledge with others. | **1** | **2** | **3** | **4** | |
| 0b. I regularly tell others what I am doing. | **1** | **2** | **3** | **4** | |
| 0c. I know what the others are doing. | **1** | **2** | **3** | **4** | |
| 0d. I immediately tell others about it, when I learn something new. | **1** | **2** | **3** | **4** | |

| **1.0– Motivation** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 1a. I am willing to share my knowledge because it can enhance my reputation. | **1** | **2** | **3** | **4** | |
| 1b. I think that sharing my knowledge makes my colleagues better aware of my skills. | **1** | **2** | **3** | **4** | |
| 1c. I consider that my institution recognizes/values those who share knowledge. | **1** | **2** | **3** | **4** | |
| 1d. I consider that my institution provides its members with a fair evaluation/reward system for sharing knowledge. | **1** | **2** | **3** | **4** | |
| 1e. I think that sharing knowledge has a direct impact on the progression of my career. | **1** | **2** | **3** | **4** | |

| **2.0– Trust** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 2a. All members are honest and sincere dealing with me about knowledge. | **1** | **2** | **3** | **4** | |
| 2b. Nobody takes advantage of my knowledge. | **1** | **2** | **3** | **4** | |
| 2c. All members deal constructively and carefully with my information. | **1** | **2** | **3** | **4** | |

| | | | | | |
|---|---|---|---|---|---|
| 2d. The information I receive is accurate at all times. | **1** | **2** | **3** | **4** | |
| 2e. All members always keep their promises to me. | **1** | **2** | **3** | **4** | |

| **3.0– Time Urgency** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 3a. Time is often sufficient. | **1** | **2** | **3** | **4** | |
| 3b. Project teams are generally under time pressure. | **1** | **2** | **3** | **4** | |
| 3c. The schedule is frequently checked by clients. | **1** | **2** | **3** | **4** | |
| 3d. Project teams have little time for inter-project knowledge transfer | **1** | **2** | **3** | **4** | |

| **4.0– Leadership Style** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 4a. Our organization's leadership let project managers know what is expected of them. | **1** | **2** | **3** | **4** | |
| 4b. Our organization's leadership informs project managers about what needs to be done and how it needs to be done. | **1** | **2** | **3** | **4** | |
| 4c. Our organization's leadership asks project managers to follow standard rules and regulations. | **1** | **2** | **3** | **4** | |
| 4d. Our organization's leadership explains the level of performance that is expected of project managers. | **1** | **2** | **3** | **4** | |
| 4e. Our organization's leadership gives vague explanations of what is expected of project managers on the job. | **1** | **2** | **3** | **4** | |

| **5.0– Reward System** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 5a. I receive monetary rewards when I share my knowledge. | **1** | **2** | **3** | **4** | |
| 5b. I receive additional points for promotion when I share my knowledge. | **1** | **2** | **3** | **4** | |
| 5c. I receive respect from others when I share my knowledge. | **1** | **2** | **3** | **4** | |
| 5d. I am praised by superiors for sharing my knowledge. | **1** | **2** | **3** | **4** | |

| **6.0 – Shared Culture** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 6a. The atmosphere is tolerant and open. | **1** | **2** | **3** | **4** | |
| 6b. Inter-project and cross-functional information exchange are encouraged. | **1** | **2** | **3** | **4** | |
| 6c. Sharing knowledge among employees is advocated. | **1** | **2** | **3** | **4** | |
| 6d. Top managers pay attention to knowledge sharing. | **1** | **2** | **3** | **4** | |

| **7.0 – Communication** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 7a. I and my project team often keep each other fully informed about their issues during communication. | **1** | **2** | **3** | **4** | |
| 7b. I and my project team often discuss issues candidly with each other. | **1** | **2** | **3** | **4** | |
| 7c. I and my project team often communicate with each other through formal or informal channels. | **1** | **2** | **3** | **4** | |
| 7d. I and my project team often communicate efficiently with each other in depth. | **1** | **2** | **3** | **4** | |

| **8.0– IT Infrastructure** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 8a. Remote team members do not have to perform any additional steps or procedures to access data from home or central office. | **1** | **2** | **3** | **4** | |
| 8b. Team members throughout the organization utilize a common operating system (e.g., Linux, Microsoft Windows, MacOS or Ubuntu). | **1** | **2** | **3** | **4** | |
| 8c. Software applications can be easily transported and used across multiple platforms. | **1** | **2** | **3** | **4** | |
| 8d. My organization's user interfaces provide transparent access to all platforms and applications. | **1** | **2** | **3** | **4** | |
| 8e. My organization provides multiple interfaces or entry points (e.g., Web access) for team members. | **1** | **2** | **3** | **4** | |
| 8f. The rapidity of IT change (e.g., revision level, release) in our organization is high. | **1** | **2** | **3** | **4** | |

| **9.0– Project Task Collaboration Tool** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 9a. I share knowledge with my project teams through email e.g. Gmail, Yahoo mail. | **1** | **2** | **3** | **4** | |
| 9b. I and my project teams connect with each other through an online meeting platform e.g. Zoom, Google meet, Cisco Webex, or Microsoft teams. | **1** | **2** | **3** | **4** | |
| 9c. I collaborate with my project team through an enterprise information system e.g. Microsoft SharePoint, Google Collab, Enterprise Resource Planning. | **1** | **2** | **3** | **4** | |
| 9d. I and my project teams connect with each other through direct phone calls. | **1** | **2** | **3** | **4** | |

| **10.0– Security Concern** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 10a. My IT project organization helps in the secure storage of my data. | **1** | **2** | **3** | **4** | |
| 10b. My IT project organization ensures data protection so that it cannot be manipulated by hackers outside the organization. | **1** | **2** | 3 | **4** | |
| 10c. My IT project organization also ensures protection of usage of official data by team members for their personal benefit. | **1** | **2** | 3 | **4** | |



| **11.0– Relative Advantage** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 11a. The knowledge transfer system in our organization helps with better coordination and communication. | **1** | **2** | **3** | **4** | |
| 11b. The knowledge transfer system in our organization enhances my performance. | **1** | **2** | **3** | **4** | |
| 11c. The knowledge transfer system in our organization provides flexibility. | **1** | **2** | **3** | **4** | |
| 11d. The knowledge transfer system in our organization enhances learning and sharing. | **1** | **2** | **3** | **4** | |
| 11e. The knowledge transfer system in our organization is useful and believe that it will increase productivity. | **1** | **2** | **3** | **4** | |

| **12.0– Compatibility** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 12a. The knowledge transfer system in our organization provides a seamless interface with the other legacy applications. | **1** | **2** | **3** | **4** | |

| | | | | | |
|---|---|---|---|---|---|
| 12b. The knowledge transfer system in our organization provides relevant and required application support. | **1** | **2** | **3** | **4** | |
| 12c. The knowledge transfer system in our organization faced no problems of system unexpected behavioral issues. | **1** | **2** | **3** | **4** | |

| **13.0– Top Management Support** | **Expert Rating** | | | | **Remarks** |
|---|---|---|---|---|---|
| 13a. In my organization, top management think that encouraging IT project knowledge sharing with colleagues is beneficial during IT project implementation. | **1** | **2** | **3** | **4** | |
| 13b. In my organization, top management supports and encourages employees to share their IT project-related knowledge with colleagues during IT project implementation. | **1** | **2** | **3** | **4** | |
| 13c. In my organization, top management provides most of the necessary help and resources to enable employees to share IT project knowledge during IT project implementation. | **1** | **2** | **3** | **4** | |
| 13d. In my organization, top management are keen to see that employees are happy to share their IT project-related knowledge with colleagues during IT project implementation. | **1** | **2** | **3** | **4** | |



**Section C**

**Suggestions and comments regarding the questionnaire:**

_____

**Expert Information:**

Name of Expert: _____

Expertise Area: _____

Years of Experience in the Particular Area: _____ Years

Official Stamp:

**Your time and cooperation are highly valued.**
**Thank you.**

Best regards,
*Ismail Bello*
*PhD candidate,*
*School of Computing (SOC), College of Arts and Sciences (CAS),*
*University Utara Malaysia (UUM), 06010 Sintok, Kedah, Malaysia.*
*+2347039162687,* +0143222348, esmailbello@gmail.com

# Appendix E

# Data Collection Form

PUSAT PENGAJIAN PENGKOMPUTERAN
*SCHOOL OF COMPUTING*
Universiti Utara Malaysia
06010 UUM SINTOK
KEDAH DARUL AMAN
MALAYSIA

Tel: 604 - 928 5056/5058/5060
Faks (Fax): 604 - 928 5067
Laman Web (Web):www.soc.uum.edu.my

Our Ref : UUM/CAS/SOC/905946
Date : 21st March 2024

**TO WHOM IT MAY CONCERN**

Dear Sir/Madam

**DATA COLLECTION FOR PROJECT PAPER/THESIS**

This is to certify that the following student is currently conducting a field study and data collection as partial requirements of the graduate studies:

| | | |
|---|---|---|
| **Name** | : | **Bello Ismail** |
| **Matric No.** | : | **905946** |
| **Course** | : | **PhD (Information Technology)** |
| **Title of research** | : | **Determinants of Tacit Knowledge Transfer Implementation for Information Technology Project Managers (ITPMs) in Nigeria** |

For further information regarding the research work of the project paper/thesis, you may get in touch with Assoc. Prof. Dr. Mazida Ahmad the supervisor at +604-9285110 or email to mazida@uum.edu.my.

We sincerely hope your organisation will be able to assist the student for the data collection process.

Thank you.

**"MALAYSIA MADANI"**
**"SERVING THE NATION"**
**"KEDAH SEJAHTERA – NIKMAT UNTUK SEMUA"**
**"KNOWLEDGE, VIRTUE, SERVICE"**

Upholding the principles of trust and integrity

**DR. FAZLI AZZALI**
Programme Chairman PhD
p.p. Dean
School of Computing

# Appendix F

## Acknowledgement Letter from NITDA

NITDA

Nigerian Information Technology Development Agency
No. 28, Port Harcourt Crescent,
Off Gimbiya Street,
P.M.B 564,
Area 11, Garki, Abuja, Nigeria.

17th August 2024

**To Whom It May Concern,**

I am writing to formally acknowledge the invaluable support provided by the Nigerian Information Technology Development Agency (NITDA) in facilitating the research efforts of **Mr. Ismail Bello**. NITDA generously provided a comprehensive list of formally licensed IT project organizations in Nigeria, including their company addresses and contact information. This vital information enabled the identification of IT project managers, leaders, and top executives within these organizations.

The assistance provided by NITDA was instrumental in streamlining Mr. Bello's data collection process, allowing him to focus on engaging with the key individuals and organizations critical to the success of his research study.

Should you require any additional information, please feel free to contact me via my official email at sabdulkareem@nitda.gov.ng or info@nitda.gov.ng.

Yours faithfully,

Shamsudeen Abdulkareem
Planning Officer to the DG/CEO
NITDA



**National Information Technology Development Agency**
*Corporate Headquarters:* No. 28, Port Harcourt Crescent, Off Gimbiya Street, P.M.B 564, Area 11, Garki, Abuja, Nigeria
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FEDERAL MINISTRY OF COMMUNICATIONS AND DIGITAL ECONOMY

# Appendix G

## Executive Step of Research